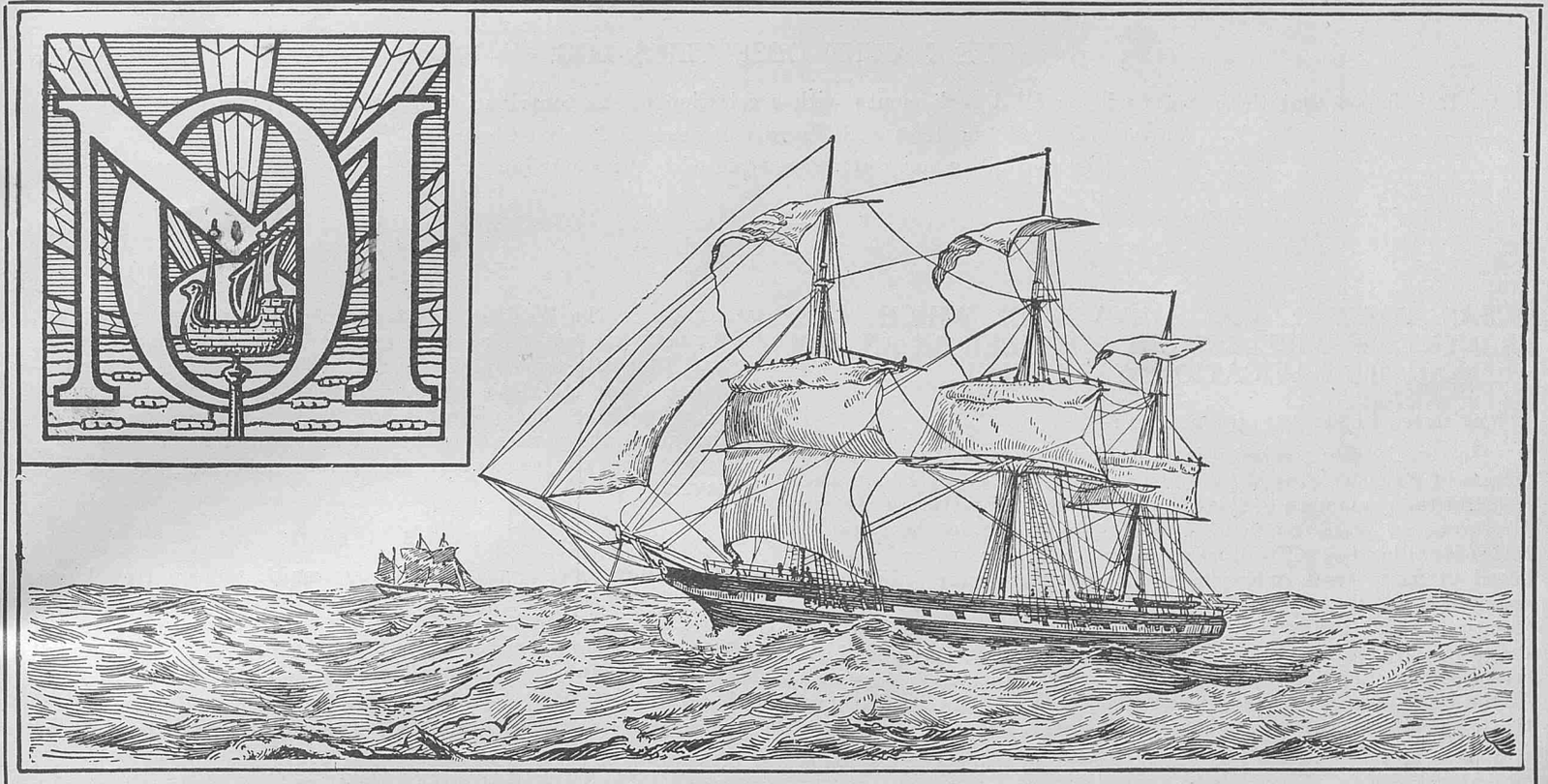
M.O. 262.



VOL. IX. No. 99. THE MARINE OBSERVER. MARCH, 1932.

TABLE OF PRINCIPAL CONTENTS.

	Page.
Currents in Indian Waters	53
Marine Observer's Log (with illustrations)	54
Currents in the Persian Gulf, Northern Arabian Sea, Bay of Bengal, etc. I.—Summary of Previous Knowledge ...	58
Southern Ice Reports—**March**	61
Weather Signals:—	
Wireless Stations Detailed to receive Routine Coded Weather Reports from "A" Selected Ships	62
Wireless Stations Detailed to intercept Routine Coded Weather Reports from "B" Selected Ships	64
Sweden, Germany, Latvia and Russia	66
Lithographic illustrations after page 68:—	
Chart IV—Ships Wireless Weather Signals.	
Currents on the Trade Routes in the Persian Gulf, Northern portion of the Arabian Sea, Bay of Bengal and in the region of Sumatra—**February, March and April.**	
Wind for the region adjacent to S.W. approaches to Great Britain—**March.**	
Wind, Fog, Mist and Weather for the region N.E. and S.W. of Panama Canal—**March.**	

CURRENTS IN INDIAN WATERS.

In this number we publish the first of the quarterly section charts of currents observed since 1910 on the trade routes in the Persian Gulf, Northern Portion of the Arabian Sea, Bay of Bengal and region of Sumatra, also a summary of the information published previous to this investigation.

In the subsequent numbers of this year the remaining quarterly section charts will be published with the results obtained from the investigation. The investigation can only be complete if local knowledge is forthcoming. It will be remembered that last year in the investigation of the currents off the South and East Coast of Africa, though much that was new was added to the information of the main currents, we were unable to add materially to the information of inshore counter currents.

In Indian Waters for this investigation information derived from local knowledge is particularly desirable.

The sailing directions tell us that if a cyclone is travelling to the North Westward in the Bay of Bengal a strong Westerly current across the head of the Bay may be expected and Mr. Barlow quotes extensively in his article from the work of Sir John Eliot regarding current during cyclonic storms. A large proportion of the observations used were those made in sailing ships and the set and drift given may have been affected by leeway when hove to, and therefore far in excess of the actual current.

Up to the present our investigation of observations made by British Ships since 1910 do not indicate the existence of anything like such strong currents as were said to exist during cyclones by this authority, and it will be of great value if those of long experience of navigation in India Waters will send in their views if possible supported by records made at the time of observation.

The substantiation by modern observation of this phenomena of very strong westerly current at the head of the Bay of Bengal and of strong currents in the region of cyclones, or proof to the contrary, is a matter of importance to safe navigation. We invite all who can write from actual experience to do so and to send in their views as soon as possible.

Remarks upon general experience of current in the region being charted this year are asked for also.

All this information will help in our investigation and so contribute to the Atlas of Currents of the Indian Ocean which is now well advanced and into which we are fitting these quarterly section charts as they are published year by year.

Marine Superintendent.

London.
December 10th, 1931.

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THE MARINE OBSERVER'S LOG.

It is hoped that these pages will be filled each month with a selection of the contributions of Mariners in manuscript, or remarks from the Logs and Records of regular Marine Observers.
Responsibility for statements rests with the Contributor.

OCEAN TOWAGE AND SALVAGE IN WHICH THE PRACTICE OF WIRELESS AND WEATHER AS AN AID TO NAVIGATION WAS USEFUL.

It was stated in the January number:—

"We occasionally receive written accounts from the Captains and officers of British Ships of experience in which they have been able to better the navigation of their ships through the practice of Marine Meteorology. Many of these have been published in the pages of this journal headed "The Marine Observer's Log"; but we have also heard of many more experiences, some of them more valuable as examples than any yet published. These could not be published on hearsay without the necessary confirmatory evidence. Now the way that British Voluntary Marine Meteorological work has gained all its success is simply through giving due credit to those at sea who do the work, and by making known whenever possible cases illustrative of practical utility and scientific interest.

Here then is a way in which the officers of the Merchant Navy and Marine Observers in particular can in the coming year serve the cause of Marine Meteorology, and by so doing assist towards the real economy which we strive for in our service which is entirely National, but also Imperial and International.

By economy we mean efficient work without wasted energy or expense."

Here is a case in which wireless communication was the means of obtaining prompt assistance and towage, and in which the practice of wireless and weather was useful. We heard that S.S. *City of Kimberley* had lost her propeller in the South Pacific in June, 1930, and of this fine feat of salvage by *Opawa*, one of the British Voluntary Observing Fleet and detailed as a Selected Ship, but when her Meteorological Record was received not a word did she tell us of the splendid service she had rendered.

After several visits by the Port Meteorological Officers in London and Liverpool *Opawa* was induced to overcome her modesty, and Captain F. W. Robinson tells us how he received information of S.S. *City of Kimberley's* disablement and carried out the operations, and how the information received by wireless which his officers were able to summarise on weather charts enabled him to avoid the gales and high seas nearer the centre of a cyclonic storm system which they encountered. The Weather Chart and the track chart by Mr. H. P. Williamson, 3rd officer, together with the photo taken from an aircraft illustrate the Captain's report. This is a piece of seamanship that he and his ship's company may well be proud of, and such a fine example of the application of Marine Meteorology that we publish it at the earliest possible moment and do not wait as is customary for the appropriate monthly number of The Marine Observer.

"Opawa's" Report.

"The motor vessel *Opawa* when on her maiden voyage from Liverpool to Auckland received a Wireless Telegraph message to C.Q. from the S.S. *City of Kimberley* that she had lost her propeller and required assistance. Our offer of taking her in tow being accepted we turned 16 points at 2.20 p.m. A.T.S. June 21st, 1931, and arrived alongside of her 9.0 a.m. next morning.

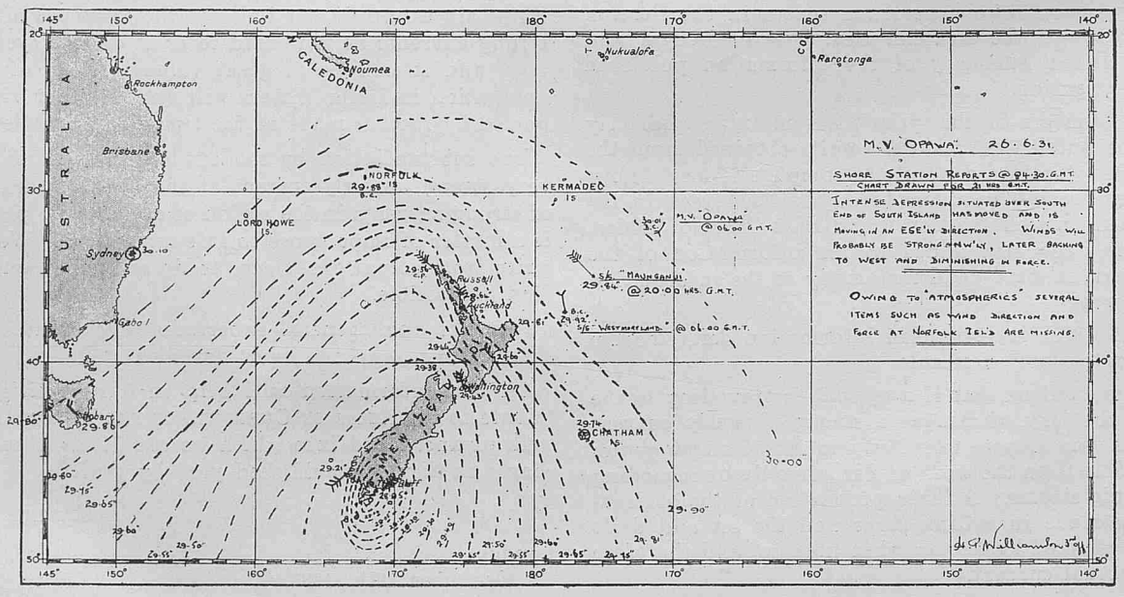
The weather for the previous 36 hours had been moderate to strong gale backing from N.W. to S.S.W., moderating about noon June 21st, leaving a high confused sea and swell.

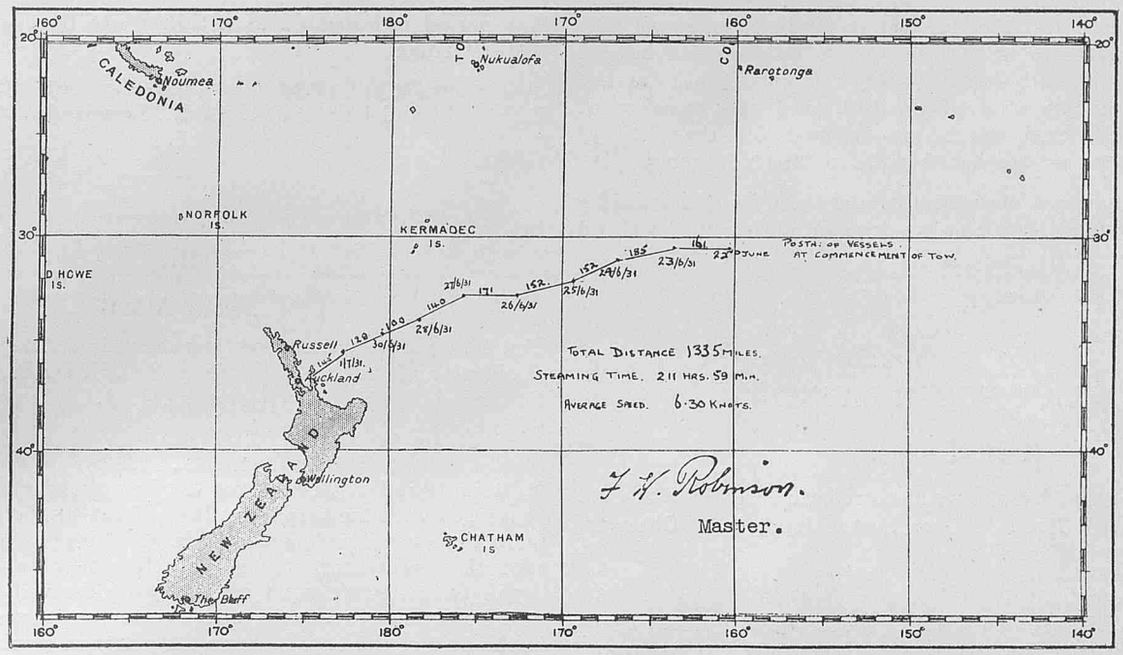
After the S.S. *City of Kimberley* had unshacked her starboard anchor from the cable, we attempted to make connection by rocket line, but one burnt through in the air, another fell short, as well as one fired by the *City of Kimberley* which also fell short.

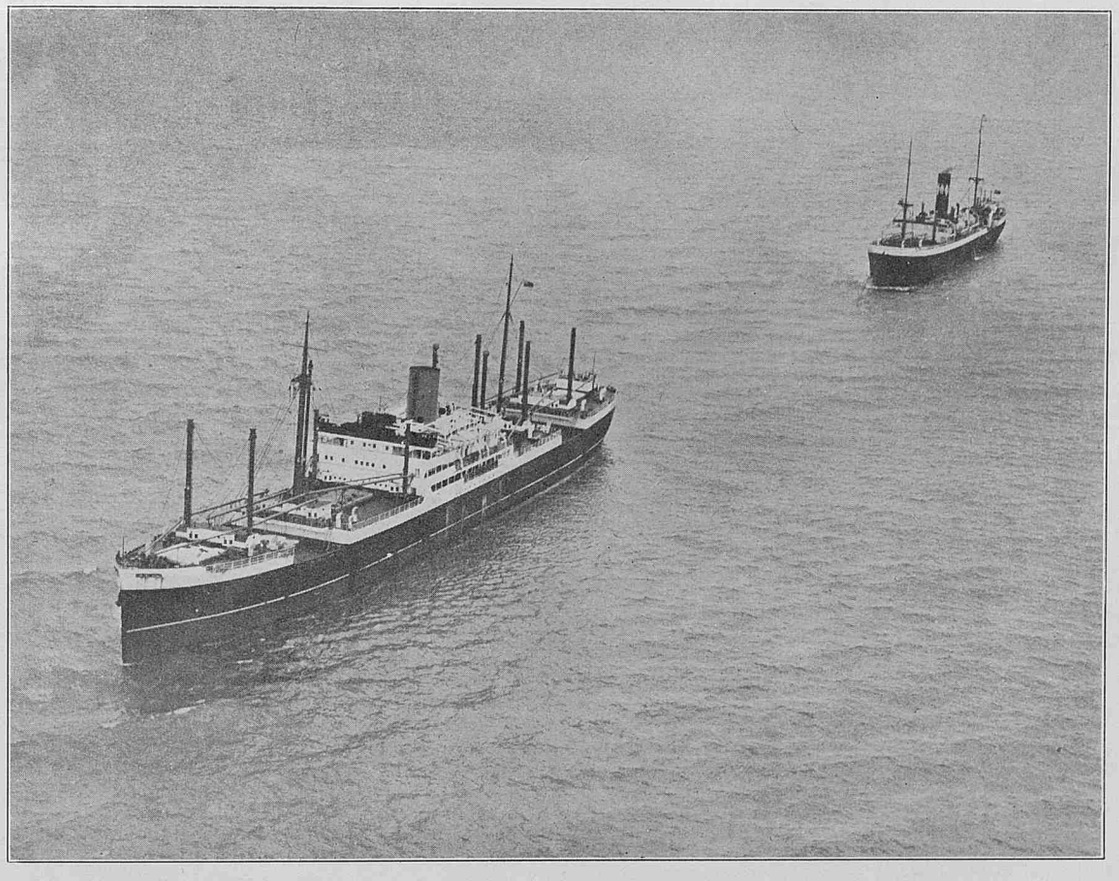
A starboard lifeboat was sent away in charge of the Second Officer and the *Kimberley's* rocket line picked up. A 3 in. manilla was hauled across to which the *Kimberley* bent on a small handy wire on to which our 5½ in. wire towing hawser was bent. Unfortunately while the *Kimberley* was heaving this on board it caught on her stem and carried away. While we were heaving our hawser in again the *Kimberley* fired a rocket whose line landed across us.

There were no more hitches after this and shortly we had our 5½ in. wire towing hawser from our starboard quarter and our 6 in. towing hawser from our port quarter shackled to his starboard cable, which was then slacked out to 75 fathoms and racked off with wire lashings to several bitts.

Our hawsers were veered to about 100 fathoms on each, turned up on the bitts, led round the fore part of the after hatch and made fast to a second pair of bitts on the opposite sides of the deck, the corners of the hatch being well protected by slabs of 9 in. by 3 in. planks.


M.V. OPAWA. 26.6.31.
SHORE STATION REPORTS @ 04-30 G.M.T.
CHART DRAWN FOR 21 HRS G.M.T.
INTENSE DEPRESSION SITUATED OVER SOUTH END OF SOUTH ISLAND HAS MOVED AND IS MOVING IN AN ESE'LY DIRECTION. WINDS WILL PROBABLY BE STRONG NNW'LY, LATER BACKING TO WEST AND DIMINISHING IN FORCE.
OWING TO 'ATMOSPHERICS' SEVERAL ITEMS SUCH AS WIND DIRECTION AND FORCE AT NORFOLK ISLD ARE MISSING.
AUSTRALIA
NEW CALEDONIA
Noumea
Nukualofa
Rarotonga
Rockhampton
Brisbane
Sydney
NORFOLK
KERMADEC
LORD HOWE
M.V. "OPAWA" @ 06.00 G.M.T.
S.S. "MAUNGANUI" @ 20.00 HRS. G.M.T.
S/S "WESTMORELAND" @ 06.00 G.M.T.
Wellington
CHATHAM
Hobart
H. P. Williamson 3rd Off.





M.V. " Opawa " towing S.S. " City of Kimberley," approaching Auckland Harbour, July 2nd, 1931. Photograph taken from the Air.

Other pieces of plank were driven in the chocks under the hawsers and planks were also laid amidships wedging the hawsers slightly up to try to stop them chafing on any part of the steel chocks. The hawsers wore a groove slowly into the timber, fresh timber being driven in as necessary, plenty of thick grease was kept on the timber and hawsers.

We proceeded at 3.06 p.m. and arrived in Auckland at 9.17 a.m., Thursday, July 2nd (N.Z. Time) when tugs took over from us.

Weather reports from New Zealand were intercepted on the 24th and 26th June as well as ships in the vicinity which were good enough to send their weather. From these reports weather charts were drawn which showed an intense depression in the Tasman Sea, with a moderately rapid movement to the E.S.E.

Course was altered to West to pass as far North as possible of this depression and this course was held for approximately twenty hours. The wind increased to N.W. by N. force 6 accompanied by rough sea and moderately heavy swell. Had we continued on our W.S.W'ly course we should have undoubtedly encountered stronger winds and rougher seas.

The daily runs were 161, 185, 152, 152, 171, 140, 100, 129 and 145, a total of 1,335 miles in 8 days 20 hours and an average speed of 6.3 knots.

On June 28th, the day of the 100 mile run, a moderate S'ly. gale which could not be avoided was experienced with high sea and very heavy Southerly swell, speed was reduced and sea brought just before the beam.

On Wednesday, July 1st, the day before arrival the vessel was stopped for a few minutes to ease out a few feet on each hawser to freshen the nip, as both hawsers were chafing slightly at the chocks, this was the only stop of the tow until the morning of arrival, when in sheltered waters we stopped for the *City of Kimberley* to heave in her starboard cable to fifteen fathoms.

At 10.0 a.m. the tugs took over from us and the *City of Kimberley* let go our hawsers and at 11.35 a.m. we dropped anchor in Auckland Harbour."

DERELICT MOTOR LAUNCH.

North Pacific.

THE following is an extract from the Meteorological Log of S.S. *Port Hunter*, Captain W. G. HIGGS, Balboa to Auckland, N.Z. Observer, Mr. P. A. MUNDAY, 3rd Officer.

" Sunday, March 29th, 1931, in Latitude 6° 24′ N., Longitude 81° 29′ W. at Noon A.T.S. sighted derelict motor launch *Helen* right ahead; vessel was stopped, lifeboat launched and derelict towed alongside and hoisted aboard. From papers found aboard, this boat appeared to belong to a gentleman in Panama, and it was later found that, nine or ten days previous *Helen* had been stolen by sailors, wishing to rejoin their ship at anchor in Panama Bay, and afterwards cast adrift. Though searched for by police and aeroplanes, the launch was not sighted until the 29th by this vessel which eventually returned to Panama from New Zealand and restored *Helen* to her owner on June 11th, 1931, in rather better trim than when found, for the engine was running smoothly and a new coat of paint had been given her."

CURRENT RIP.

Red Sea.

THE following is an extract from the Meteorological Record of S.S. *Kashgar*, Commander F. SUDELL, R.D., R.N.R., Yokahama to London. Observer, Mr. R. P. EDDY, 2nd Officer.

On March 7th, 1050 G.M.T., experienced narrow belt of violently agitated water. It extended from an E.N.E'ly to a W.S.W'ly direction, for a distance of about 7 miles, being roughly 200 yards in width.

Upon entering this disturbance, the ship was deflected 20° to port from her course (N. 34° W.) suddenly, in spite of helm being hard over to counteract this. The water had a bubbly appearance.

The weather was fine and clear, with a N.N.W'ly wind force 5/6 and a rough head sea and slight swell.

Position of ship, Latitude 25° 50′ N., Longitude 35° 09′ E.

BROKEN WATER.

South China Sea.

THE following is an extract from the Meteorological Log of S.S. *Kwangchow*, Captain C. B. L. STRINGER, Bangkok to Swatow.

March 6th, 1931, 1.30 p.m., A.T.S. Wind E.S.E. 2. sea very slight, swell E.N.E., low long. Observed a single line of breakers or overfall, distant 1 mile on starboard beam, parallel to the course. It was observed continuously until 2.40 p.m., A.T.S. At times during this period it appeared as a thin white line, while at others as a distinct ridge.

Between the following positions:—Latitude 21° 25′ N., Longitude 115° 59′ E. and Latitude 21° 36′ N., Longitude 116° 04′ E.

SQUALL.

North Atlantic.

THE following is an extract from the Meteorological Record of S.S. *Lochkatrine*, Captain A. COCKS, D.S.C., R.D., R.N.R., San Francisco to United Kingdom. Observer, Mr. J. E. PARDOE MATTHEWS, 4th Officer.

15th March, 1931, at 8.00 a.m., A.T.S., with very low barometer 28.92 in. Wind N.N.W. force 3. Temperature 54°. A heavy swell converged with the ship, travelling about 12 knots from W.N.W. and more than usually dense and black. When at a distance of half a mile the temperature fell 2½° F. Barometer unaffected; before the squall two separate wind eddies were observed, one a quarter of a mile in advance lifting the water into short waves, the other actually in the bow of the squall lifting the water in a spiral spray, the water appearing to lift from its " after " end. This lasted two minutes and disappeared. The squall though unusually threatening produced little in wind, and with apparently very heavy rain all round only a short heavy shower and two bursts of hail were experienced. Previous weather clear and cloudy, cumulus predominating and later weather moderately cloudy, wind remaining N.N.W.

Position of ship, Latitude 40° N., Longitude 42° W.

ST. ELMO'S FIRE.

North Atlantic.

THE following is an extract from the Meteorological Log of S.S. *Cerinthus*, Captain W. J. HAMMOND, Preston to Port Arthur, Texas. Observer, Mr. V. H. KIRKLAND, 3rd Officer.

March 27th, 1931, 8.30 p.m. ship's time, encountered very heavy squall with vivid lightning and heavy rain. When squall was at its height " St. Elmo's fire " was observed at the lightning conductor on the fore-topmasthead. Resembling a blue flame, it varied in intensity and lasted for about five minutes, being brightest when the rain was falling heaviest. Barometer 1003.7 mb. Air 67° F. Wind W. by S. force 7, veering to W.N.W. during squall. The fore-topmast is wood.

Position of ship, Latitude 29° 42′ N., Longitude 57° 37′ W.

GREEN FLASH AT NIGHT.

North Atlantic.

THE following is an extract from the Meteorological Record of S.S. *Ripley Castle*, Captain R. W. GOODACRE, Algoa Bay to Southampton. Observer, Mr. J. A. FERGUSON, 3rd Officer.

On March 21st, 1931, at 10.45 p.m., A.T.S., a brilliant green flash appeared to the westward between Capella and Betelguese and at about the same altitude as these stars—approximately 14°. The flash very much resembled a Very Light and lit the sky for about one second. Its size appeared to be about ten times the size of Jupiter which was just above. Bearings:—Betelguese—N.88°W. (T), Flash—N. 68° W. (T). Capella—N. 46° W. (T).

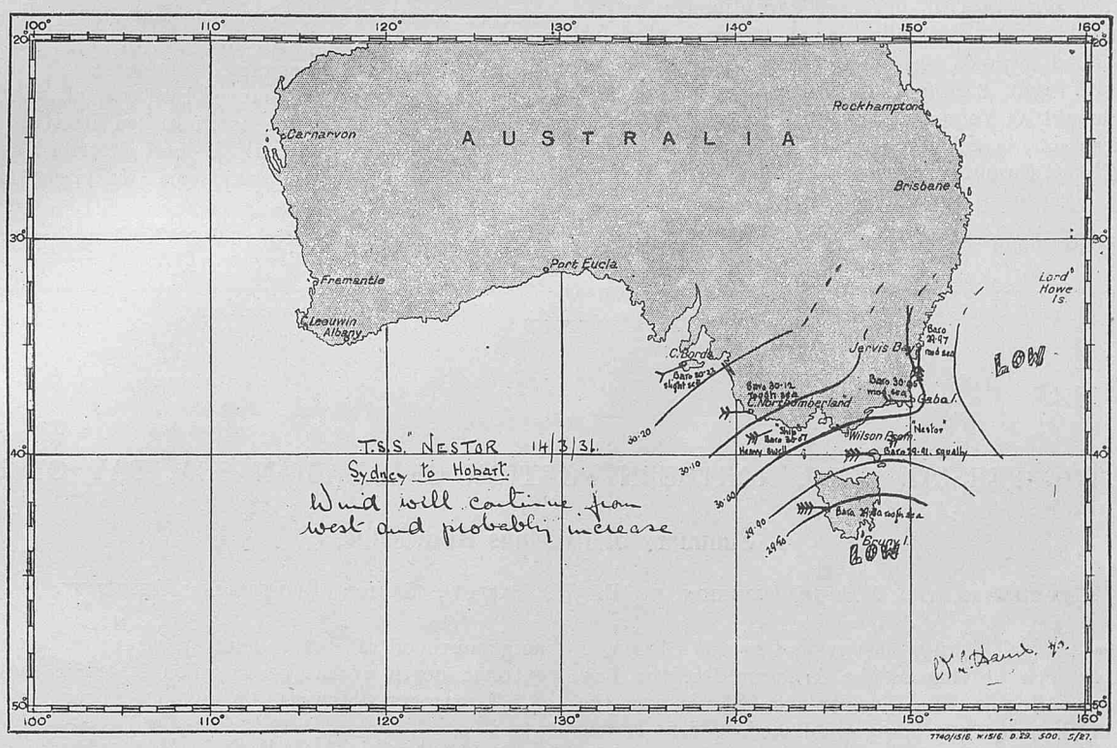
Wind North, force 3, no cloud.

Position of ship:—Latitude 15° 10′ N. Longitude 17° 38′ W.

WEATHER CHARTS MADE AT SEA.

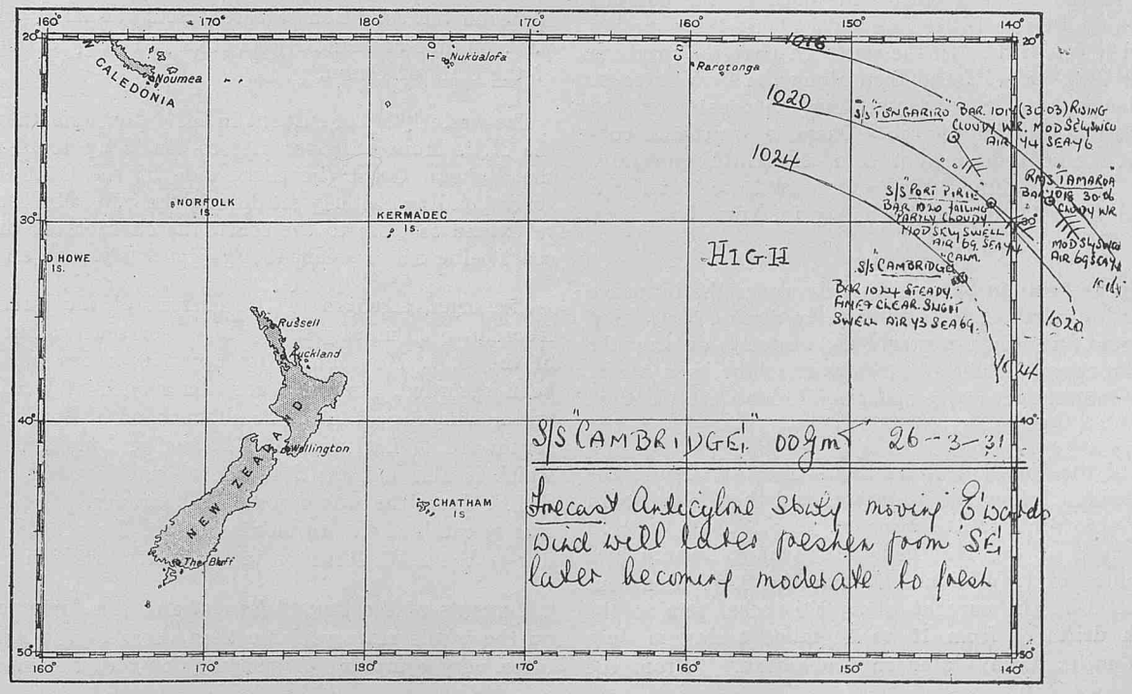
Australian Waters.

Weather chart made at sea on board S.S. *Nestor*, Captain F. ADCOCK, by Mr. W. T. HANDS, 4th Officer.



South Pacific.

Weather chart made at sea on board S.S. *Cambridge*, Captain R. WILLIAMS, by Mr. T. S. FARRAR.



METEORS.

Arabian Sea.

THE following is an extract from the Meteorological Record of S.S. *Eldonpark*, Captain R. BURNS, Constantinople to Bhaunagar. Observer, Mr. I. MACRAE.

March 18th, 1931, 7.30 p.m., A.T.S., observed exceptionally bright meteor which appeared in the constellation of Corvus at about 20° altitude and travelled towards Spica, disappearing in cloud at about 8°. Duration of flight, 6 seconds. First showed in a vivid blue light, twice as bright as Venus, and changed at half flight to vivid green and threw off large numbers of smaller meteors of different colours. Cloud Cumulus, Fracto-Cumulus. Air 76° F. Clear and fine.

Position of ship, Latitude 14° 38′ N. Longitude 51° 31′ E.

The following is an extract from the Meteorological Record of S.S. *City of Singapore*, Captain J. W. KENDALL, Birkenhead to Bombay. Observer, Mr. F. WRIGLEY, 3rd Officer.

March 18th, 1931, at 1633 observed very brilliant meteor at an altitude of about 45° bearing true East, travelling North, the light from it was dazzling, lighting up the sky in that quarter as the moon would, and throwing off sparks of different colours, the phenomenon was so pronounced that one felt as if one could hear the sound of it burning. It extinguished itself at an altitude of 10° ahead of the ship. It could be best described as a small moon and equal in brilliance to the moon, this phenomenon lasted about 40 seconds.

Position of ship, Latitude 14° 20′ N., Longitude 52° 16′ E. (approx.).

CURRENTS IN THE PERSIAN GULF, NORTHERN PORTION OF ARABIAN SEA, BAY OF BENGAL, ETC.

I. Summary of Previous Knowledge.

PREPARED IN THE MARINE DIVISION BY E. W. BARLOW, SENIOR PROFESSIONAL ASSISTANT.

IN the present volume of THE MARINE OBSERVER, Current Charts of the Persian Gulf, Northern portion of the Arabian Sea, the Bay of Bengal, Andaman or Burma Sea, the Malacca Strait and the Indian Ocean west of Sumatra are being published. These charts cover the whole area to the north of those published in Volume VII (1930). In this article an account will be given of the currents as they were known, according to published information and the older charts, before this year's investigation. In the subsequent articles the information derived from the new charts will be examined. This may or may not confirm all the statements set out in the present summary. Results of special investigations of current in portions of the region under consideration will also be given in the later articles. The entire region comes under the influence of the Monsoons.

Currents of the Persian Gulf.—There appears to be no general system of currents in the Persian Gulf and much of the current experienced is probably tidal. Little is known about the currents in the northern part of the Gulf. In the southern part the currents appear mostly to set into the Gulf and then along the Persian coast and there is a tendency to set towards the Arabian coast from the neighbourhood of Jezirat Sheikh Shuaib. There is sometimes considerable current in the south-eastern part of the Gulf, especially in January, April, May and June. Drifts of from 10 to 20 miles a day in January and from 15 to 40 miles a day in April have been experienced.

Currents of the North Arabian Sea.—These are under the influence of the Monsoons, setting north-easterly to easterly during the period of the S.W. Monsoon and south-westerly to westerly during the period of the N.E. Monsoon. These remarks refer to the open ocean. Near the coasts the current generally speaking follows the trend of the coast.

Coastal Currents of the North Arabian Sea.—The currents off the south-east coast of Arabia follow the Monsoons and therefore run in opposite directions according to the time of year. They vary in speed with the strength of the Monsoon. February, March and October are the months of transition. During the S.W. Monsoon, from April to September, the current along this coast sets to the north-eastward with drifts of from 15 to 50 miles a day in July and from 10 to 30 miles a day later in the season. From the neighbourhood of Ras al Hadd the current flows easterly across the extreme north of the ocean when it turns south-easterly into the S.S.E. current which sets down the west coast of India.

During the height of the N.E. Monsoon, in November and December, the coastal circulation is entirely reversed, the current flowing N.N.W. from Cape Comorin up the west coast of India, thence westerly across the extreme north of the ocean and south-westerly down the south-east coast of Arabia.

The currents off Ras al Hadd are strong and variable and are much influenced by the prevailing winds. In this neighbourhood, owing to the trend of the coast, the current sets northward during the S.W. Monsoon and divides, one part flowing easterly across the ocean as stated above and the other setting north-westerly into the Gulf of Oman, flowing along its southern coast. During the N.E. Monsoon the conditions are reversed, the main current setting S. or S.W. off Ras al Hadd where it is joined by a south-easterly set out of the Gulf of Oman.

The westerly set of current in the extreme north of the ocean during the N.E. Monsoon gives rise to drifts up to 35 miles a day along the Makrán Coast (northern side of the Gulf of Oman), but the corresponding easterly set during the S.W. Monsoon does not appear to extend so close to the coast, the currents at this season near the coast being nil or weak, though generally with an easterly direction.

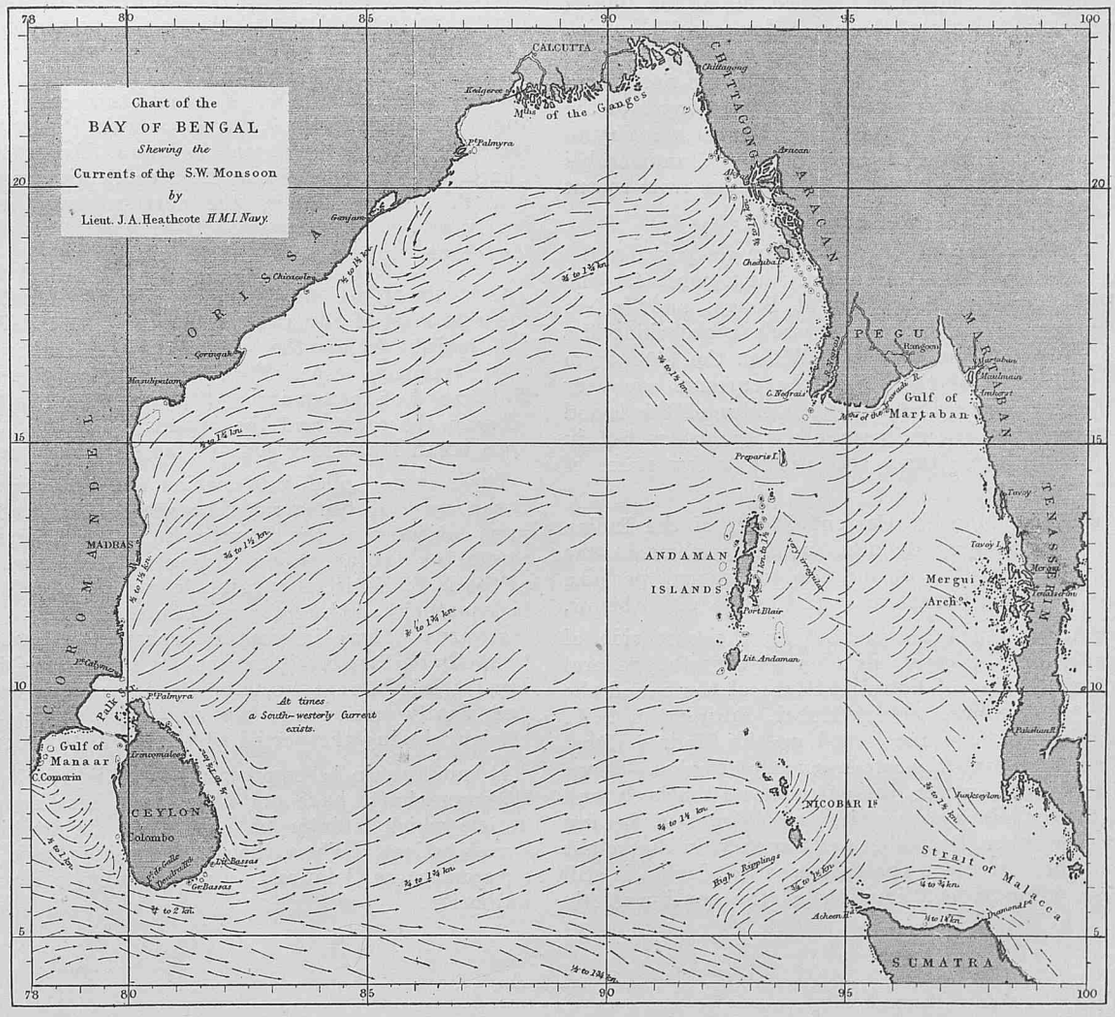
The usual strength of the current of the west coast of India is from 10 to 30 miles per day in either season, but during the height of the S.W. Monsoon drifts up to 60 miles per day, S.S.E., have been recorded. In the transition month of October the current is still flowing S.S.E. in the neighbourhood of Bombay but flows N.N.W. southward of Latitude 14° N. Similar conditions occur in January, which is also a transition month on this coast, the current setting S.S.E. down the whole coast in February. The S.S.E. set is therefore re-established two months before the general current circulation due to the S.W. Monsoon in the North Arabian Sea.

Currents of the Bay of Bengal and the Andaman Sea.—These are on the whole more variable than those of the Arabian Sea and are often very complex. A summary only of the main features will be

given here. The Bay of Bengal and the Andaman Sea will be considered together and will be referred to as the bay.

In January the general set over the bay is S.W. and W., but along the Madras coast, on the western side, the current sets in a southerly direction at the rate of from 10 to 60 miles a day. In February and March the current shows a complete circulation in a clockwise direction. It sets northerly or north-easterly up the western side of the bay, easterly or south-easterly across the head of the bay, southerly and south-westerly along the eastern side and westerly in the south and centre of the bay. The currents in the centre of the circulation are irregular; this centre extends from about Latitude 15° N. to 18° N. and is north of the centre of the bay, particularly in February. Current is strongest on the west side of the bay where the drifts may reach 50 or 60 miles a day. In April the conditions are similar but the circulation is less regular.

In May and June the northerly and north-easterly set still persists up the west coast, but over the remainder of the bay the currents



are irregular, though north-easterly or easterly directions predominate. In July and August the conditions are similar, but the northerly set up the Madras coast only extends so far as about Latitude 16° N. North of this there is a south-westerly current down the coast. In September there is a strong easterly set in the southern part of the bay, south of Latitude 10° N. Elsewhere the currents are mainly north-easterly, though irregular. They are very complex about the Andaman Islands in this month. The north-flowing current sets up the west side of the bay as before, up to about Latitude 16° N., with a south-westerly current down the coast further north.

In October the northerly current up the Madras Coast, which has persisted since February, is completely reversed and the southerly current here forms part of a circulation round the bay in a counter-clockwise direction, opposite to that of February to April. This circulation is somewhat weaker and less well-defined than that of February to April, particularly on the eastern side.

The currents of the centre of the bay are very variable and confused. In November and December there is a general but irregular set to westward and south-westward over the bay. The south-westerly and southerly set down the west side of the bay is well-defined and drifts may reach 60 or 70 miles a day off the Madras coast.

In 1862 Lieut. J. A. Heathcote, I.N., published an account of the currents of the Bay of Bengal during the S.W. Monsoon, derived from the log books of the East India Company, in the Journal of the Royal Geographical Society. Extracts from this account are given in Findlay's Pilot, together with a chart drawn by Lieut. Heathcote. This chart is reproduced here and it is in good general agreement with the Admiralty Current Charts at present in use.

Sir John Eliot, when Director-General of Indian Observatories, made a special study of the cyclones of the Bay of Bengal. He found that cyclones produce strong temporary currents within the storm field. Near the coasts the directions of these currents are greatly modified, but in the open sea the set is approximately in the same direction as the wind. The drift in the inner storm area of intense cyclones may be as much as from 6 to 8 knots and in the outer storm area from 2 to 3 knots. This refers to the open sea; near the head of the bay the currents may be even stronger.

Sir John Eliot also found that an increasing westerly set at the head of the bay is a marked indication of a cyclone forming or having formed within the bay. The following quotation is taken from his "Hand-book of Cyclonic Storms in the Bay of Bengal (1890)":—
"One important indication at the head of the Bay (and more

especially at the Sandheads), of unsettled weather in the centre or north of the Bay is the set or current which commences almost with the disturbance and increases with it. In consequence of the peculiar shape of the Bay (converging and contracting northwards), and of the shallowness of the water over a considerable area near the head of the Bay, and of the large quantities of fresh water brought down by the Ganges and Megna, the currents at and near the head of the Bay are always considerable, but in ordinary weather shift with the tides. The strong southerly winds which prevail for some time before a whirl has been definitely formed, and also during its existence appear to give, in the south and centre of the Bay, by surface friction, a general north-easterly impetus to the water, which, north of Diamond Island, is converted into a coast current that is deflected near the head of the Bay, and gives rise to a steady set or drift to the west. If a cyclonic storm has formed in the centre or north of the Bay and moves in a west or north-west direction to the Orissa or Bengal Coast, the rotatory air-motion sets up a similar, but of course much feebler, rotatory motion of the water-surface in the centre and north of the Bay, and hence also gives a westerly motion to the water at the head of the Bay. Consequently, the westerly increasing set of the water at the head of the Bay is a marked and characteristic feature of the antecedent weather which favours cyclone formation, as well as of the cyclone itself. It is probable that the strength of a cyclone advancing to the north-west coast of the Bay could be roughly ascertained by the strength of the westerly set at the head of the Bay. Data are however wanting to test this." Sir JOHN ELIOT goes on to say that "Innumerable examples of the westerly drift of current might be given from recent information sent in by ships."

Currents in the Neighbourhood of Ceylon.—From its position the island of Ceylon constitutes a meeting or dividing point for the current systems of the Arabian Sea, Bay of Bengal and Indian Ocean. Very varying reports are given by vessels approaching the island as to current, direction and velocity. Within the 100-fathom line or within 12 to 15 miles of the coast, the currents are very variable and on either the eastern and western sides of the island currents may be experienced setting parallel to the coast but in opposite directions, at the same time, and within a few miles of one another.

A study of the Admiralty Monthly Current Charts of the Indian Ocean nevertheless indicates very definite current systems in the ocean outside the 100-fathom line during the monsoonal periods, with transition stages between. A summary of these is given below.

In February, March and April the current on the east side of Ceylon flows northward up the coast, forming part of the general clockwise circulation of the Bay of Bengal. South of the island the current is westerly. From June to September, during the S.W. Monsoon, the current which flows northward up the Madras Coast appears to originate near the north-eastern coast of Ceylon. Down the east coast of the island, however, the current sets southerly and then south-easterly, finally joining the main easterly current flowing south of Ceylon. In November, December and January, in the height of the N.E. Monsoon, the current on the east coast of Ceylon is still southerly but it now forms a continuation of the south-westerly and southerly current which flows down the whole of the west side of the Bay of Bengal during these months. Off the south-easterly coast of Ceylon the current sets south-westward and finally passes into the westerly current south of the island. May and October are months of transition.

The main currents off the east coast of Ceylon may reach considerable strength. The months of strongest current, according to the Admiralty charts, are November and December, with drifts of up to 70 and 80 miles per day respectively. The currents past the south of the island were dealt with in MARINE OBSERVER, Volume VII, August and December, 1930. The currents in this neighbourhood appear so interesting that a special investigation of the currents in the region to the north-east of the island will be made in the course of this year's work. The west side of Ceylon was included in the charts for 1930 but insufficient observations are available for that region.

Currents of the Malacca Strait.—Throughout the year there is said to be a constant north-westerly set through the middle of the Strait which is strongest during the period of the N.E. Monsoon. The currents at the northern end of the Strait are, however, much affected by tidal streams. Along the northern coast of Sumatra a westerly current flows throughout the year, stronger in some months than others and sometimes attaining a rate of 2 knots. During the period of the S.W. Monsoon this current therefore flows in opposition to the wind, and outside it, farther from the coast, the normal easterly current is found. According to the Admiralty Charts the currents of the Malacca Strait are weakest in May and August, and in October the north-westerly set out of the Strait nearly ceases, the current setting easterly and south-easterly into the Strait during this month.

Currents of the Indian Ocean West of Sumatra.—The currents on the west coast of Sumatra outside the weak tidal streams are variable and mainly follow the prevailing wind. South-easterly sets are most frequent, especially in October, November and December. Northward of the equator, when the current is setting south-easterly between the coast and the islands lying off it, the current in the open ocean frequently runs in the opposite direction, N. or N.W.

There is not much information about the currents in the Indian Ocean west of Sumatra. The greater part of Sumatra is in the same latitudes as the Counter-Equatorial Current flowing easterly across the Indian Ocean throughout the year. During the period of the N.E. Monsoon current flows westward South of Ceylon while in equatorial latitudes the Counter-Equatorial Current is flowing eastwards. There is some evidence on the Admiralty Charts, particularly on that for December, for the supposition that the Counter-Equatorial Current turns northward off the west coast of Sumatra and finally passes into the westerly current which sets south of Ceylon, during the period of the N.E. Monsoon.

It must again be emphasised that the results of the new Marine Observer charts have not been taken into account in writing this article which is intended as a basis from which to start the new investigations. Where the older accounts have not been entirely in agreement the Admiralty Current Charts have been taken as the authority.

NOTE.—Plates produced by Lithographic process, including Charts and other large diagrams, will be found in each number after "Weather Signals."

SOUTHERN ICE REPORTS.

During the Year 1931.

March.

Year.	Day.	Position of Ice. Latitude.	Position of Ice. Longitude.	Description.	Remarks.	Name of Ship reporting.
1931	10	61° 32′ S.	53° 38′ W.	Many bergs ; much small ice		R.R.S. *Discovery II.*
	9 10	From 61° 59′ S. to 62° 02′ S.	52° 05′ W. 52° 53′ W.	Bergs and small ice		do.
	10	62° 01′ S.	52° 25′ W.	Pack ice	To southward	do.
	9	61° 59′ S.	52° 05′ W.	Bergs and small ice		do.
	9	61° 57′ S.	51° 59′ W.	Innumerable bergs	1 berg 40 feet long, to northward	do.
	9	61° 39′ S.	51° 13′ W.	Innumerable bergs		do.
	9	61° 28′ S.	50° 46′ W.	Many bergs		do.
	9	61° 03′ S.	49° 51′ W.	Many bergs		do.
	8	60° 00′ S.	49° 28′ W.	Several bergs		do.
	8	59° 33′ S.	49° 24′ W.	Several bergs		do.
	9	53° 47′ S.	37° 10′ W.	3 bergs	2 tabular, 1 large pyramid	R.R.S. *William Scoresby.*
	7	53° 18′ S.	37° 30′ W.	2 bergs	Large tabular	do.
	6	53° 24′ S.	37° 29′ W.	5 bergs	Moderate, tabular, weathered	do.
	4	E. of Clerke Rocks		15 bergs	Small, weathered ; few tabular	do.
	4	55° 20′ S.	32° 25′ W	6 bergs	Tabular	do.
	3	55° 40′ S.	30° 30′ W.	40 bergs	Small and moderate, tabular ; all very old and weathered	do.
	3	55° 48′ S.	30° 30′ W.	14 bergs	1 large tabular	do.
	3	From 55° 58′ S. to 55° 48′ S.	28° 15′ W. 30° 30′ W.	14 bergs	Mostly irregular ; 1 large tabular, estimated length, 3 miles.	do.
	3	55° 58′ S.	28° 15′ W.	10 bergs	2 large tabular, 8 small to moderate, tabular and irregular	do.
	2 3	From 56° 10′ S. to 55° 58′ S.	28° 00′ W. 28° 15′ W.	3 bergs	1 large tabular	do.
	2	56° 10′ S.	28° 00′ W.	15 bergs	7 moderately large, tabular ; 8 moderate, irregular	do.
	2	N.E. of Zavodoski		6 bergs	Irregular	do.
	2	From E. of Visokoi to N.E. of Zavodoski		10 bergs	Various shapes	do.
	2	E. of Visokoi		4 bergs	Moderate, tabular	do.
	2	Vicinity of Visokoi		1 berg	Small, irregular	do.

Reports of Ice previous to March, 1931, will be found in The Marine Observer, Volume VIII, No. 87, p. 66.

WEATHER SIGNALS.

I.—SHIPS' WIRELESS WEATHER SIGNALS.

Urgent Meteorological reports should be made at any time. Any ship at any time encountering a tropical revolving storm should report to all ships and the appropriate station, continuing to report at intervals of three hours so long as the ship remains under the influence of the storm.

Ships experiencing gales in which the wind reaches Force 10 or above in the Beaufort Scale should inform all ships within range.

Ships encountering Ice or other navigational dangers should report immediately to all ships and the appropriate station; see instructions for Danger to Navigation Signals for all ships, pages 28 and 29, Vol. IX, No. 97.

For full particulars of "Selected Ships" Routine Meteorological Reports with Schedule for Communication, see pages 13 to 16, Vol. IX, No. 97.

See List of W/T Stations detailed to receive reports from **A Selected Ships** with particulars up to date below, also on Chart IV.

In parts of the world where such stations and particulars are not given, British **A Selected Ships** should make their reports to **CQ** on 2100 metres (143 kc/s) as stated on page 15, Vol. IX, No. 97 (January, 1932, MARINE OBSERVER).

B Selected Ships broadcast their report to C.Q. on 600 m. spark, and these may be intercepted by the stations ringed in on Chart IV. In making these reports to C.Q. "B Selected Ships" should make special endeavour to ensure that the report is received at these shore stations. With a view to assisting Meteorological Services who have provided information and to ensuring that routine reports from all "Selected Ships" within range of certain coast stations may be received by those services a list of stations specially detailed to receive reports from "B Selected Ships" is also given on pages 64 and 65. The procedure given on pages 13 to 16, Vol. IX, No. 97, should be adhered to as far as possible.

According to agreement reached by the International Meteorological Conference, 1929, all arrangements for the co-operation of shipping in Voluntary Marine Meteorological work are to be made through the Meteorological Services of the different countries in which the ships are registered, in accordance with the agreed upon International plan for all parts of the World, following the International Convention for Safety of Life at Sea, 1929.

WIRELESS STATIONS DETAILED TO RECEIVE ROUTINE CODED WEATHER REPORTS FROM "A SELECTED SHIPS."

Request for Information.

THE ATTENTION OF METEOROLOGICAL SERVICES IS INVITED TO THE INVITATION GIVEN ON PAGE 13 OF VOL. IX, NO. 97, JANUARY MARINE OBSERVER.

Ocean.	Station.	Position.	Call Sign.	Frequency and Wave Length. For Station to call up "Selected Ships."	Frequency and Wave Length. For "Selected Ships" to report to Station.	Area and limits covered by Station.	Telegraphic address of Meteorological Centre.	Information required—Limit of Groups.	Notes.
North Atlantic and North Sea.	Portishead.	Lat. 51° 28′ 41″ N. Long. 2° 47′ 30″ W.	GKU.	149 kc/s. (2013 metres).	143 kc/s. (2100 metres).	North Sea and Eastern North Atlantic East of Longitude 40° W. and North of Latitude 38° N., but not within 300 miles of station. (see Chart IV.)	Weather London.	Weather only, up to seven groups, preferably No. 3 Supplementary Groups.	Control system. "Selected Ships" chosen to report in given order notified by station daily at 2230, 0330, and 1030 G.M.T. Roll call thus—Weather begins — Call signs of chosen "Selected Ships" —Weather ends.
	Chatham Mass., Sayville N.Y. or West Palm Beach.	Lat. 41° 42′ N. Long. 70° 00′ W. Lat. 40° 45′ N. Long. 73° 06′ W. Lat. 26° 42′ N. Long. 80° 02′ W.	WCC. WSL. WMR.		142·9 kc/s. (2098 metres).	North Atlantic West of Longitude 40° W.	Observer Washington.	Weather only. First four groups of observations taken at 0000 and 1200 G.M.T. only required.	No control. All British "A Selected Ships" within area to address their 0000 and 1200 G.M.T. observations to Observer Washington and their 1800 G.M.T. observations to CQ in accordance with schedule.
	Horta, Azores	Lat. 38° 32′ N. Long. 28° 38′ W.	CTH.		125 kc/s. (2400 metres).	North Atlantic South of Latitude 38° N. and East of Longitude 40° W.	Radio Horta.	Weather only, up to seven groups, preferably No. 3 Supplementary Groups.	No control — all British "A Selected Ships" within area should report in accordance with Schedule.

WIRELESS STATIONS DETAILED TO RECEIVE ROUTINE CODED WEATHER REPORTS FROM "A SELECTED SHIPS."

(Continued.)

Ocean.	Station.	Position.	Call Sign.	Frequency and Wave Length.		Area and limits covered by Station.	Telegraphic address of Meteorological Centre.	Information required—Limit of Groups.	Notes.
				For Station to call up "Selected Ships."	For "Selected Ships" to report to Station.				
Mediterranean and Red Sea.									
South Atlantic.									
Indian Ocean.	Colombo.	Lat. 6° 55′ 14″ N. Long. 79° 52′ 46″E.	VPB	130 kc/s. (2300 metres).	143 kc/s. (2100 metres).	Indian Ocean including Arabian Sea and Bay of Bengal within a range of about 1500 miles.	Obs.	Weather only. No. 6 Supplementary groups preferred.	No control — all British "A Selected Ships" within area should report in accordance with Schedule.
	Perth.	Lat. 32° 01′ 51″ S. Long. 115°49′31″E.	VIB	—	125 kc/s. (2400 metres).	Indian Ocean and Southern Ocean between Long. 105° and 135° E.; but not within 100 miles of station.	Weather.	Weather only. No. 6 Supplementary groups.	No control — all British "A Selected Ships" within area should report in accordance with Schedule. Reports not required for observation times not starred on Chart I., p. 15, Vol. IX. No. 97 (January).
North Pacific and China Sea.	Cape d'Aguilar, Hong Kong.	Lat. 22° 12′ 39″N. Long. 114°15′11″E.	VPS.		125 kc/s. (2400 metres).	China Sea and North Pacific to about 1,500 miles from station.	Royal Observatory.	Weather only, preferably No. 6 Supplementary Groups.	No control — all British "A Selected Ships" within area should report in accordance with Schedule.
South Pacific.	Sydney.	Lat. 33° 46′ 00″ S. Long. 151°03′09″E.	VIS	—	125 kc/s. (2400 metres).	S. Pacific, Coral and Tasman Seas and Southern Ocean between Long. 135° and 160° E.; but not within 100 miles of station.	Weather.	Weather only. No. 6 Supplementary groups.	No control — all British "A Selected Ships" within area should report in accordance with Schedule. Reports not required for observation times not starred on Chart I., p, 15, Vol. IX. No. 97 (January).

WIRELESS STATIONS DETAILED TO INTERCEPT ROUTINE CODED WEATHER REPORTS FROM "B SELECTED SHIPS."

Ocean.	Station.	Position.	Call Sign.	Telegraphic address of Meteoro-logical Centre desiring information.	Information desired.	Notes.
North Atlantic.	Horta, Azores.	Lat. 38° 32′ N. Long. 28° 38′ W.	CTH.	Radio Horta	Weather only, up to 7 groups, preferably No. 3 Supplementary Groups.	
South Atlantic.	Salinas	Lat. 0° 35′ 00″ S. Long. 47° 18′ 45″ W.	PPL.	Meteoro Rio.	Weather only, including supplementary groups.	
	S. Luiz	Lat. 2° 31′ 48″ S. Long. 44° 16′ 51″ W.	PXM.			
	Fortaleza	Lat. 3° 46′ 21″ S. Long. 38° 32′ 26″ W.	PPC.			
	Natal	Lat. 5° 46′ 41″ S. Long. 35° 18′ 24″ W.	PXN.			
	F. Noronha	Lat. 3° 50′ 24″ S. Long. 32° 24′ 48″ W.	PXF.			
	Olinda	Lat. 8° 00′ 35″ S. Long. 34° 51′ 00″ W.	PPO.			
	Amaralina	Lat. 13° 00′ 12″ S. Long. 38° 30′ 45″ W.	PPA.			
	Abrolhos	Lat. 17° 57′ 30″ S. Long. 38° 41′ 05″ W.	PXH.			
	Victoria	Lat. 20° 10′ 00″ S. Long. 40° 17′ 46″ W.	PPT.			
	Rio	Lat. 22° 53′ 42″ S. Long. 43° 13′ 24″ W.	PPR.			
	Santos	Lat. 23° 56′ 27″ S. Long. 46° 19′ 28″ W.	PPS.			
	Floriano-polis.	Lat. 27° 36′ 00″ S. Long. 48° 30′ 18″ W.	PPF.			
	Juncçao	Lat. 32° 04′ 00″ S. Long. 52° 07′ 00″ W.	PPJ.			
Indian Ocean.	Calcutta.	Lat. 22° 33′ 31″ N. Long. 88° 20′ 16″ E.	VWC.	Weather.	Weather only up to 6 groups, No. 6 Supplementary Groups preferred.	
	Rangoon.	Lat. 16° 45′ 57″ N. Long. 96° 11′ 51″ E.	VTR.			
	Madras.	Lat. 12° 59′ 17″ N. Long. 80° 10′ 56″ E.	VWM.			
	Bombay.	Lat. 19° 04′ 55″ N. Long. 72° 49′ 54″ E.	VWB.			
	Karachi.	Lat. 24° 51′ 05″ N. Long. 67° 02′ 32″ E.	VWK.			
	Matara.	Lat. 6° 01′ 07″ N. Long. 80° 35′ 39″ E.	GZP.			
	Mauritius.	Lat. 20° 23′ S. Long. 57° 35′ E.	VRS.	Observatory Mauritius.	Weather 4 universal groups and first of No. 6 Supplementary Groups.	
	Geraldton.	Lat. 28° 47′ 15″ S. Long. 114° 36′ 24″ E.	VIN	Weather.	Weather only, including No. 6 Supplementary Groups.	
	Perth.	Lat. 32° 01′ 51″ S. Long. 115° 49′ 31″ E.	VIP			
	Esperance.	Lat. 33° 52′ 40″ S. Long. 121° 53′ 34″ E.	VIE			

WIRELESS STATIONS DETAILED TO INTERCEPT ROUTINE CODED WEATHER REPORTS FROM "B SELECTED SHIPS."

(Continued.)

Ocean.	Station.	Position.	Call Sign.	Telegraphic address of Meteorological Centre desiring information.	Information desired.	Notes.
North Pacific and China Sea.	Cape d'Aguilar, Hong Kong.	Lat. 22° 12′ 39″ N. Long. 114°15′11″E.	VPS.	Royal Observatory.	Weather only, preferably No. 6 Supplementary Groups.	
South Pacific.	Auckland.	Lat. 36° 50′ 36″ S. Long. 174°46′08″E.	ZLD.	Weather Wellington.	Weather only, up to 7 groups.	
	Wellington.	Lat. 41° 16′ 26″ S. Long. 174°45′55″E.	ZLW.			
	Awarua.	Lat. 46° 30′ 27″ S. Long. 168°22′21″E.	ZLB.			
	Chatham Island.	Lat. 43° 57′ 02″ S. Long. 176°31′04″W.	ZLC.			
	Rarotonga.	Lat. 21° 11′ 54″ S. Long. 159°48′51″W.	ZKR.			
	Apia.	Lat. 13° 15′ 17″ S. Long.170′49′42″W.	ZMA.			
	Thursday I.	Lat. 10° 35′ 14″ S. Long.142°12′43″E.	VII	Weather	Weather only, including No. 6 Supplementary Groups.	
	Townsville	Lat. 19° 16′ 09″ S. Long.146°49′47″E.	VIT			
	Brisbane	Lat. 27° 25′ 34″ S. Long.153°07′19″E.	VIB			
	Sydney	Lat. 33° 46′ 00″ S. Long.151°03′09″E.	VIS			
	Melbourne	Lat. 37° 46′ 56″ S. Long.144°52′09″E.	VIM			
	Adelaide	Lat. 34° 51′ 14″ S. Long.138°31′55″E.	VIA			

II.—WIRELESS WEATHER SIGNALS.

WIRELESS WEATHER BULLETINS.

The method of decoding station weather reports made in code from shore stations intended for shipping was described in the British "Weather Shipping" Bulletin, on page 47 of Volume IX, No. 98 (The February, 1932 Number.)

The same method of decoding weather reports applies in all cases where the International Code is used having regard to the Key figures given in each case where they differ from the British Weather Shipping Bulletin.

SWEDEN.

North Sea and Baltic.

C.W. Issues.

Karlsborg W/T station, Latitude 58° 32′ N., Longitude 14° 31′ E. (approx.), call sign **SAJ**, broadcasts weather bulletins for shipping, daily as follows:—

at 1050 G.M.T. and at 2200 G.M.T. } Wavelength 4,267 metres (C.W.).

The bulletins are similar in arrangement to the British "Weather Shipping" message which was described in Vol. IX, No. 98, pp. 46 and 47, of this Journal.

The 1050 G.M.T. bulletin is based upon observations made at 0700 G.M.T., and that broadcast at 2200 G.M.T. upon observations made at 1800 G.M.T.

The bulletins commence with the words "Weather Report," and are divided into five parts.

Part I, in code.

Contains observations made at ten Swedish and four Danish and Norwegian coast stations (*see* following List) and from ships in the North Sea.

Coast Stations' observations are broadcast in two five-figure groups for each station.

The Key and Code used is exactly the same as that used for the British "Weather Shipping" Bulletin given in the February number and in the Pamphlet M.O. 329.

List of Observation Stations.

Index Number.	Station.	Position (approx.). Latitude N.	Longitude E.
1	Kalmar	56° 39′	16° 22′
2	Bjurö klubb	64° 28′	21° 34′
3	Holmögadd	63° 35′	20° 45′
4	Bremö	62° 13′	17° 44′
5	Örskär	60° 31′	18° 22′
6	Sandhamn	59° 17′	18° 55′
7	Visby	57° 39′	18° 18′
8	Skanör	55° 24′	12° 49′
9	Kullen	56° 18′	12° 27′
0	Vinga	57° 38′	11° 36′
1	Hammershus	55° 19′	14° 47′
2	Hanstholm	57° 07′	8° 36′
3	Utsire	59° 18′	4° 53′
4	Kinn	61° 34′	4° 47′

Part II, en clair (English).

A General Inference of weather conditions in N. and N.W. Europe, and adjacent seas.

Part III, en clair (English).

Weather forecasts for 12 hours for the following areas:—

1 Eastern part of the North Sea (E. of Longitude 5° E.).
2 Sweden, West Coast (Skagerrak, Kattegat and the Sound).
3 Baltic (Southern Baltic; South Skane, Bleking and Oland; Northern Baltic; East Gotaland, Svealand and Gotland).
4 Gulf of Bothnia (Bothnia Sea; Bothnia Bay).

Part IV, en clair (English).

Gale warnings for areas, 1, 2, 3 and 4 (above) for particulars, *see* p. 67.

Part V.

Navigation and Ice Warnings.

GERMANY.

North Sea.

I.C.W. Issues.

Norddeich W/T station approximate Latitude 53° 36′ N., Longitude 7° 09′ E.

Call sign—**DAN.**

Wavelength—750 m. I.C.W.

Times of Transmission—1020 and 2130 G.M.T.

The message issued at 1020 is based on 0700 G.M.T. observations. The message issued at 2130 is based on 1800 G.M.T. observations.

The messages are preceded by the words "Seewetter Nordsee" and consist of two parts.

Part I is a report in code giving actual observations with station numbers at the following stations.

Station No.	*German Station.*	*Position.*
0	Borkum Riff Lt.-V.	53° 46′ N., 6° 04′ E.
1	Heligoland	54° 11′ N., 7° 54′ E.
2	Elbe Lt.-V. No. 1	54° 01′ N., 8° 13′ E.
3	Amrum Bank Lt.-V.	54° 33′ N., 7° 53′ E.

Station No.	*Foreign Station.*	*Position.*
0	Helder	52° 58′ N., 4° 45′ E.
1	Hanstholm	57° 05′ N. 8° 35′ E.

The two foreign stations' observations are preceded by the word "Ausland" (Foreign). The Key and Code used is exactly the same as that used for the British "Weather Shipping" Bulletin given in the February number and in the Pamphlet, M.O. 329.

Part II contains a brief review of meteorological conditions followed by a forecast for the following 24 hours in German, covering the whole sea area off East and North Frisian coasts including Ostfriesland (between Borkum Riff Lt.-V., Elbe entrance and Heligoland) and Nordfriesland (Elbe entrance northward to Ellenbogen, Sylt).

Western Baltic.

I.C.W. Issue.

Kiel W/T station, approximate Latitude 54° 24′ N., Longitude 10° 11′ E.

Call sign **DBK.**

Wavelength—680 m. I.C.W.

Time of transmission 1120 G.M.T., based on 0700 G.M.T. observations.

The message is preceded by the words "Seewetter Kiel" and consists of two parts.

Part I is a report in code giving actual observations with station numbers at the following stations:—

Station No.	*German Station.*	*Position.*
4	Bulk	54° 27′ N., 10° 12′ E.
5	Fehmarnbelt Lt.-V.	54° 36′ N., 11° 09′ E.
6	Adlergrund Lt.-V.	54° 50′ N., 14° 22′ E.
7	Arkona	54° 41′ N., 13° 26′ E.

Station No.	*Foreign Station.*	*Position.*
2	Skagen	57° 42′ N., 10° 33′ E.
3	Memel	55° 42′ N., 21° 10′ E.
4	Visby	57° 39′ N., 18° 18′ E.

The three foreign stations' observations are preceded by the word "Ausland" (Foreign).

The Key and Code as above.

Part II contains a brief review of meteorological conditions followed by a forecast for the following 24 hours in German covering the area from Flensburg to Warnemunde.

Middle Baltic.

I.C.W. Issues.

Rügen W/T station, approximate Latitude 54° 35′ N., Longitude 13° 37′ E.

Call sign—**DAS.**

Wavelength—715 m. I.C.W.

Times of transmission—1030 and 2150 G.M.T.

The message issued at 1030 G.M.T. is based on 0700 G.M.T. observations. The message issued at 2150 G.M.T. is based on 1800 G.M.T. observations.

The messages are preceded by the words "Seewetter Rügen" and consist of two parts.

Part I is a report in code giving actual observations with station numbers at the following stations:—

Station No.	*German Station.*	*Position.*	*Station No.*	*Foreign Station.*	*Position.*
5	Fehmarnbelt Lt.-V.	54° 36′ N., 11° 09′ E.	2	Skagen	54° 42′ N., 10° 33′ E.
6	Adlergrund Lt.-V....	54° 50′ N., 14° 22′ E.	3	Memel	55° 42′ N., 21° 10′ E.
7	Arkona	54° 41′ N., 13° 26′ E.	4	Visby	57° 39′ N., 18° 18′ E.
8	Leba	54° 46′ N., 17° 33′ E.			

The three foreign stations' observations are preceded by the word "Ausland" (Foreign).

Key and Code as above.

Part II contains a brief review of meteorological conditions followed by a forecast for the following 24 hours in German, covering the area from Warnemunde to Leba.

Eastern Baltic.

I.C.W. Issue.

Pillau W/T station, approximate Latitude 54° 39′ N., Longitude 19° 56′ E.

Call sign—**DBP.**

Wavelength—740 m. I.C.W.

Time of transmission—1130 G.M.T. based on 0700 G.M.T. observations.

The message is preceded by the words "Seewetter Pillau" and consists of two parts.

Part I is a report in code giving actual observations with station numbers at the following stations:—

Station No.	*German Station.*	*Position.*	*Station No.*	*Foreign Station.*	*Position.*
7	Arkona	54° 41′ N., 13° 26′ E.	3	Memel	54° 42′ N., 21° 10′ E.
8	Leba	54° 46′ N., 17° 33′ E.	4	Visby...	57° 39′ N., 18° 18′ E.
9	Brusterort	54° 58′ N., 19° 59′ E.			

The two foreign stations' observations are preceded by the word "Ausland" (Foreign).

Key and Code as above.

Part II contains a brief review of meteorological conditions followed by a forecast for the following 24 hours in German, covering the area from Danzig Bay to Memel.

WIRELESS STORM WARNINGS.

SWEDEN.

Baltic.

C.W. Issues.

Karlsborg W/T station broadcasts warnings, *en clair*, English, of strong winds or gales for the following areas:—

(*a*) Eastern part of the North Sea (E. of Longitude 5° E.).
(*b*) Sweden, West Coast (Skagerrak, Kattegat and the Sound).
(*c*) Baltic (Southern Baltic; South Skane, Bleking and Oland; Northern Baltic; East Gotaland, Svealand and Gotland).
(*d*) Gulf of Bothnia (Bothnia Sea; Bothnia Bay).

The warnings commence with the words "Gale Warnings" and are valid for the ensuing 24 hours. They form Part IV of the weather bulletins broadcast by **Karlsborg W/T** at 1050 and 2200 G.M.T., explained on p. 66.

GERMANY.

North Sea.

I.C.W. Issues.

Norddeich W/T station, Latitude 53° 36′ N., Longitude 7° 09′ E., (approx.), call sign **DAN**, broadcasts storm warnings, for the North Sea, on 600 metres, I.C.W., on receipt. Warnings are also broadcast on 750 metres, I.C.W., at the first three of the following four scheduled times, unless previously cancelled:—0515, 1020 (after weather bulletin), 1630 and 2130 (after weather bulletin). All times are G.M.T. Warnings are broadcast *en clair* and preceded by the word "Funksturm."

The Warnings will contain information as to the type of disturbance, together with the direction and force of the wind.

Western Baltic.

I.C.W. Issues.

Kiel W/T station, Latitude 54° 24′ N., Longitude 10° 11′ E., (approx.), call sign **DBK**, broadcasts storm warnings for the Western Baltic; preceded by the word "Funksturm", on 600 metres, I.C.W., on receipt. Warnings are also broadcast on 680 metres, I.C.W. at 1100 G.M.T. Warnings are broadcast *en clair*.

Western and Central Baltic.

I.C.W. Issues.

Rügen W/T station, Latitude 54° 35′ N., Longitude 13° 37′ E., (approx.), call sign **DAS**, broadcasts storm warnings for the coast from Flensburg to Leba, preceded by the word "Funksturm" on 600 metres, I.C.W., on receipt. Warnings are also broadcast on 1100 metres I.C.W. at 0530, 1030 (after weather bulletin), 1650 and 2150 (after weather bulletin) unless previously cancelled. All times are G.M.T. Warnings are broadcast *en clair*.

The warnings are also transmitted on request.

Eastern Baltic.

I.C.W. Issues.

Pillau W/T station, Latitude 54° 39′ N., Longitude 19° 56′ E., call sign **DBP**, broadcasts storm warnings for the Eastern Baltic, preceded by the words "Storm Warnungen für die Ostliche Ostsee" on 600 metres, I.C.W., on receipt. Warnings are also broadcast on 740 metres, I.C.W., at 1130 G.M.T. (after the weather bulletin) and on request.

WIRELESS ICE WARNINGS

Sweden.

Swedish Ice Breaker.

I.C.W. and R/T Issues.

The Swedish Government ice breaker, call sign **SBLN** broadcasts information in **English** on a wavelength of 600 metres (I.C.W.), giving her position, proposed area for ice breaking and rendering assistance during the ensuing 12 hours. Important local information for mariners will also be broadcast.

The message is broadcast daily, during the time the vessel is employed on ice-breaking service, at 0800 and 1045 G.M.T. on weekdays and at 0800 and 1210 G.M.T. on Sundays.

The message will be repeated by wireless telephony on a wavelength of 600 metres R/T, in Swedish and English immediately after the transmission on I.C.W. The repetition will be preceded by the words "Fran Statisbrytaren" (from the State ice breaker).

Latvia.

Wireless Telephony (R/T Issues).

The broadcasting station at Riga, Latitude 56° 57′ N., Longitude 24° 07′ E., call sign **YLZ**, broadcasts in winter, on a wavelength of 526.3 metres R/T, ice reports at 0650, 1035 and 2000 G.M.T. The reports contain information concerning ice and navigation conditions for the Latvian coast. They are broadcast in the Latvian, ENGLISH and German languages.

Russia.

I.C.W. Issues.

Leningrad W/T station, Latitude 59° 55′ N., Longitude 30° 15′ E., (approx.), call sign **RDB**, broadcasts a report of the general ice conditions for the Gulf of Finland *en clair* in Russian at 1000 G.M.T. and in Russian and ENGLISH at 1200 G.M.T., on 600 m. I.C.W.

Special Notices Regarding Personnel.

The Marine Superintendent will be glad to receive information of special distinctions gained and retirements, &c., of Marine Observers.

OBITUARY.

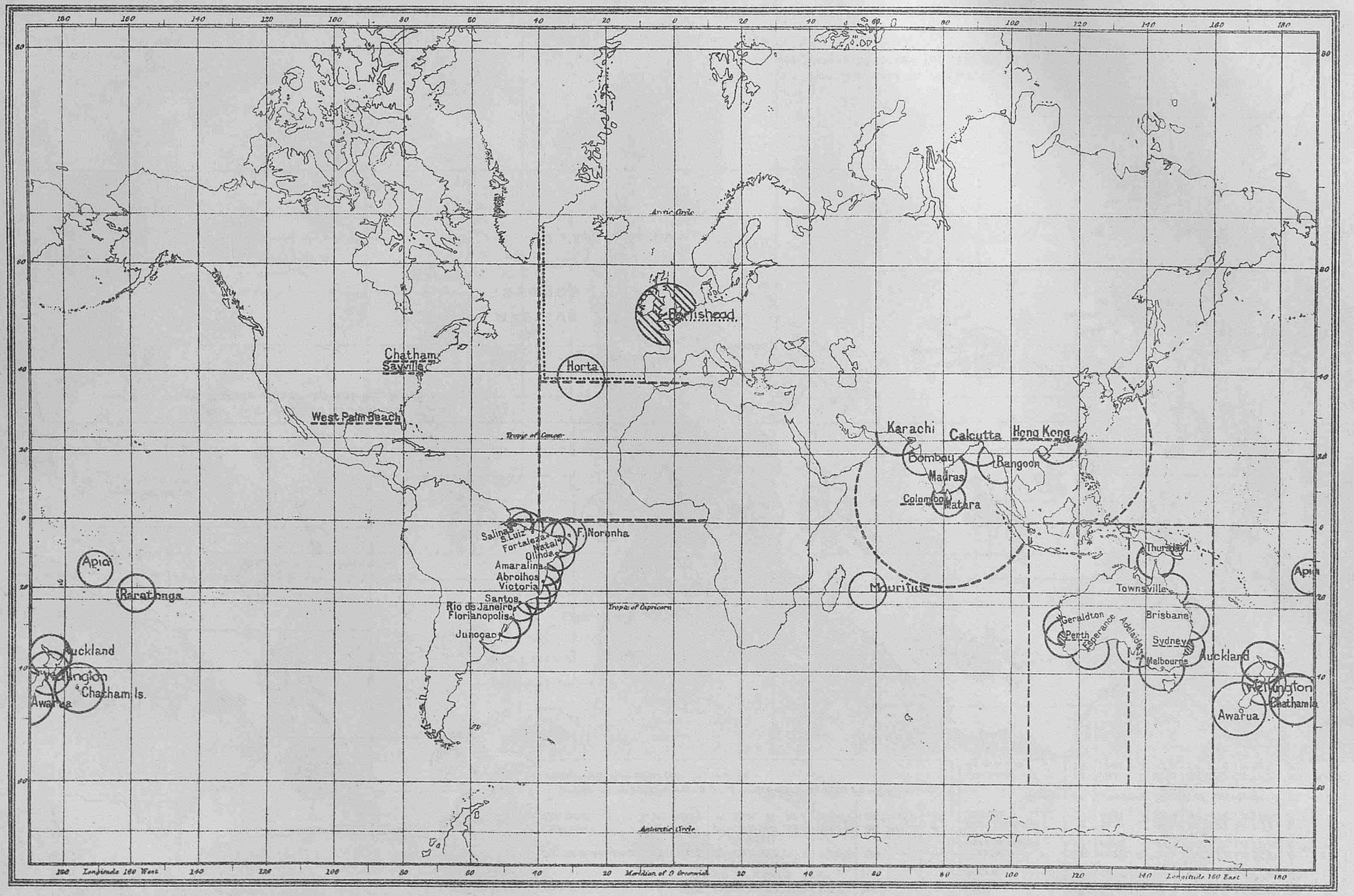
We regret to record the death on November 5th 1931 in hospital at Mosman in his sixtieth year of Captain CHARLES LINDBERG, who has been joint Merchant Navy Agent to the Marine Division at Sydney since April 1928.

After serving for some years in sail Captain LINDBERG joined the China Navigation Company and had at the time of his retirement from active service afloat commanded several ships of their fleet for a period extending over 20 years.

In 1919 Captain LINDBERG set up business in Sydney as a marine surveyor and compass adjuster. He was also a nautical assessor to both the Commonwealth and New South Wales Courts of Marine Inquiry. In his work for the Marine Division of the Meteorological Office he did much to interest and encourage Marine Observers in the application of Marine Meteorology to safe and economical navigation.

Chart IV.— SHIPS' WIRELESS WEATHER SIGNALS.

Stations for Reception of Routine Wireless Weather Reports from "Selected Ships."



The dotted line indicates the area in which British "A Selected Ships" report under control to Portishead.

A pecked line indicates the reporting area round stations in other countries to which British "A Selected Ships" should report. The names of such stations being underlined with a pecked line.

The small shaded areas round stations detailed to receive reports from "A Selected Ships" indicate where these ships should not report on account of congestion.

The full circles indicate the areas round islands and coast stations which are detailed to intercept "B Selected Ships" reports made to C.Q. on 600 metres.

CURRENTS ON THE TRADE ROUTES IN THE PERSIAN GULF, NORTHERN PORTION OF THE ARABIAN SEA, BAY OF BENGAL, AND IN THE REGION OF SUMATRA.

FEBRUARY MARCH and APRIL.

Observations of ships regularly observing for the British Meteorological Office, 1910—1931.

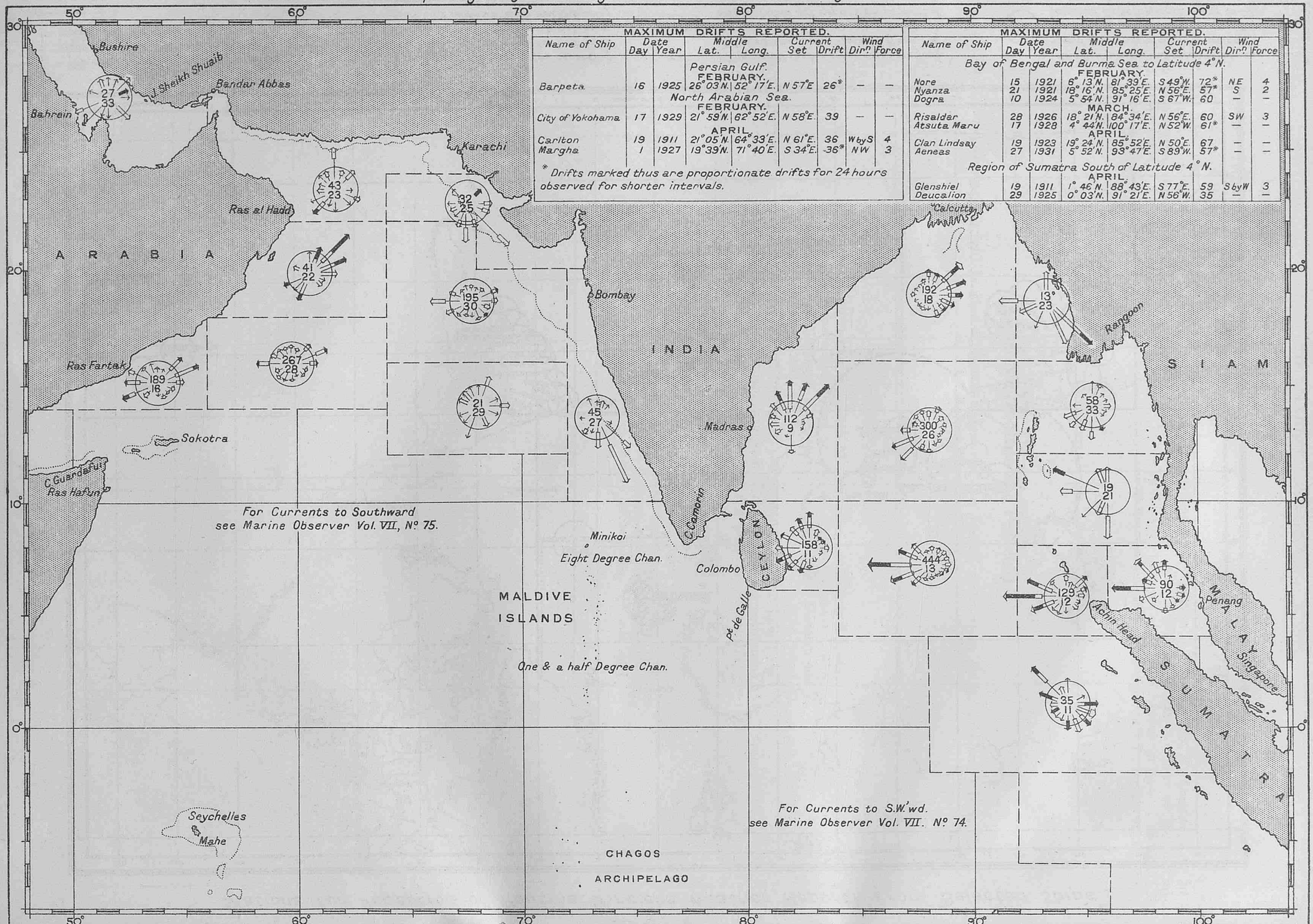
MAXIMUM DRIFTS REPORTED.

Name of Ship	Date Day	Date Year	Middle Lat.	Middle Long.	Current Set	Current Drift	Wind Dir?	Wind Force
Persian Gulf.								
FEBRUARY.								
Barpeta	16	1925	26° 03 N.	52° 17 E.	N 57° E	26*	—	—
North Arabian Sea.								
FEBRUARY.								
City of Yokohama	17	1929	21° 59 N.	62° 52 E.	N 58° E.	39	—	—
APRIL								
Carlton	19	1911	21° 05 N.	64° 33 E.	N 61° E.	36	W by S	4
Margha	1	1927	19° 39 N.	71° 40 E.	S 34° E.	36*	NW	3

* Drifts marked thus are proportionate drifts for 24 hours observed for shorter intervals.

MAXIMUM DRIFTS REPORTED.

Name of Ship	Date Day	Date Year	Middle Lat.	Middle Long.	Current Set	Current Drift	Wind Dir?	Wind Force
Bay of Bengal and Burma Sea to Latitude 4° N.								
FEBRUARY.								
Nore	15	1921	6° 13 N.	81° 39 E.	S 49° W.	72*	NE	4
Nyanza	21	1921	18° 16 N.	85° 25 E.	N 56° E.	57*	S	2
Dogra	10	1924	5° 54 N.	91° 16 E.	S 67° W.	60	—	—
MARCH.								
Risaldar	28	1926	18° 21 N.	84° 34 E.	N 56° E.	60	SW	3
Atsuta Maru	17	1928	4° 44 N.	100° 17 E.	N 52° W.	61*	—	—
APRIL.								
Clan Lindsay	19	1923	19° 24 N.	85° 52 E.	N 50° E.	67	—	—
Aeneas	27	1931	5° 52 N.	93° 47 E.	S 89° W.	57*	—	—
Region of Sumatra South of Latitude 4° N.								
APRIL.								
Glenshiel	19	1911	1° 46 N.	88° 43 E.	S 77° E.	59	S by W	3
Deucalion	29	1925	0° 03 N.	91° 21 E.	N 56° W.	35	—	—



For Currents to Southward see Marine Observer Vol. VII, No 75.

For Currents to S.W'wd. see Marine Observer Vol. VII. No 74.

EXPLANATION OF CURRENT ROSES.

The current roses are drawn from observations within the pecked lines. Arrows flow with the current, length represents frequency, thickness strength,— 6–12 miles per day, ——→, 13–24 miles per day ⟹, 25–48 " " " ⟹, 49–72 " " " ⟹, 73 miles per day and above ⟹.

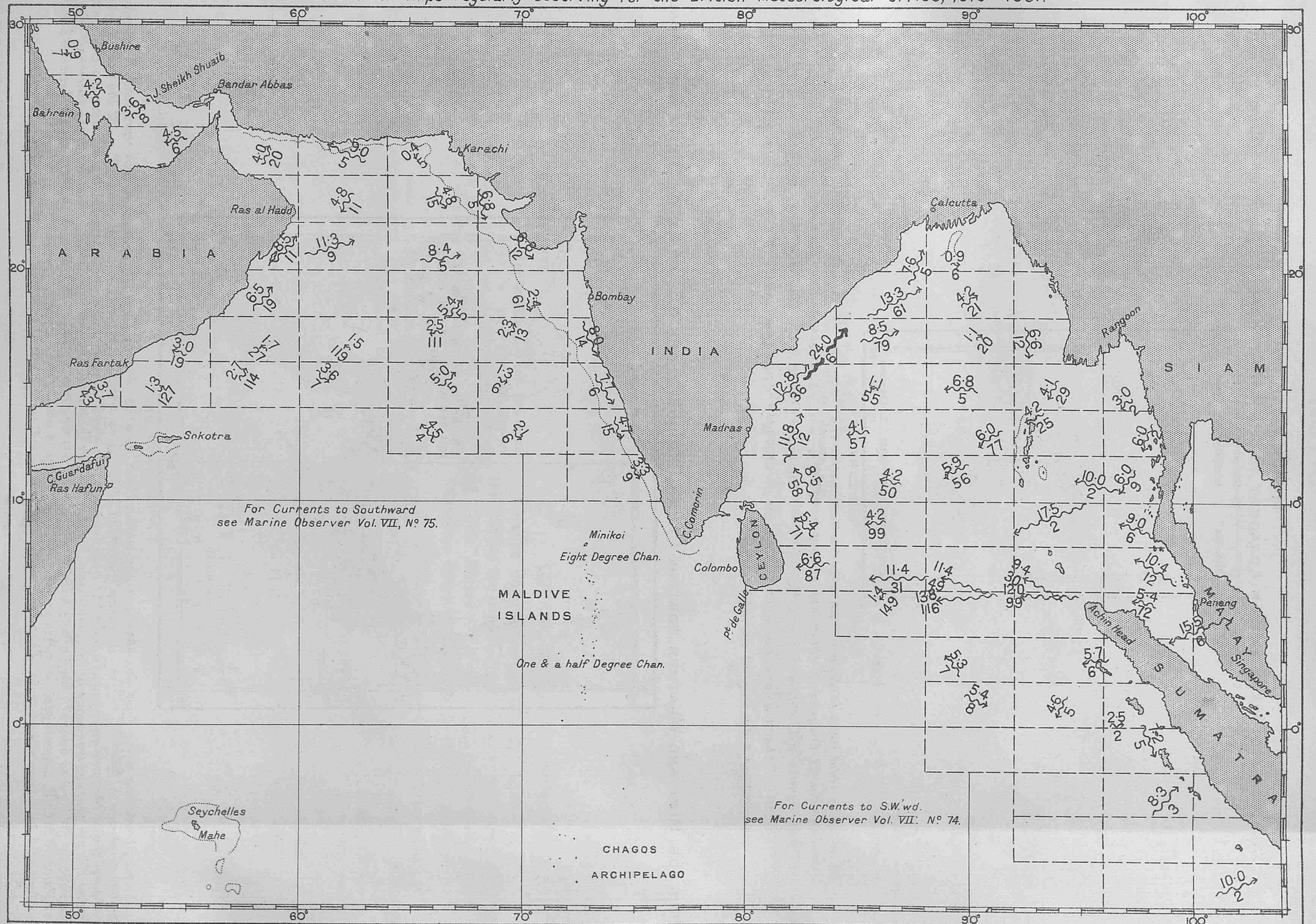
Distance from tail of arrow to circle represents 5%. Scale 1% 2% 3% 4% 5%.

The upper figure in centre of rose gives total number of observations, the lower figure the percentage frequency of currents less than 6 miles per day.

CURRENTS ON THE TRADE ROUTES IN THE PERSIAN GULF, NORTHERN PORTION OF THE ARABIAN SEA, BAY OF BENGAL, AND IN THE REGION OF SUMATRA.

FEBRUARY MARCH and APRIL.

Observations of ships regularly observing for the British Meteorological Office, 1910—1931.

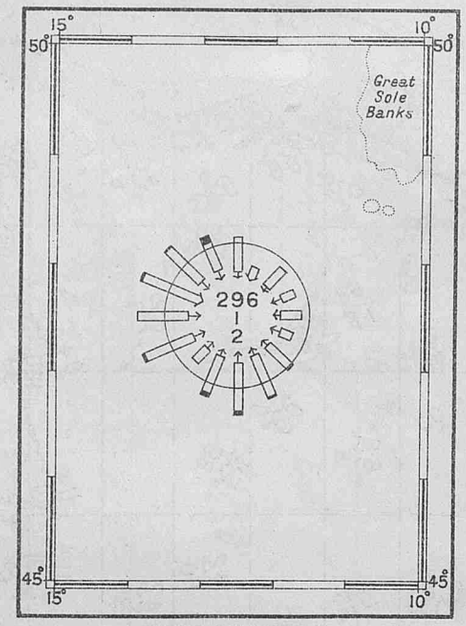


EXPLANATION OF CURRENT ARROWS.

The arrows flow with the current and represent the resultant of currents observed within the pecked lines. The centre of each arrow lies in the mean position of observation. The figures above the arrows give the velocity of current in miles per day; the figures below the arrows the number of observations. In cases where the arrows drawn to scale are inconveniently long the symbol ⟿ is substituted.

MARCH.

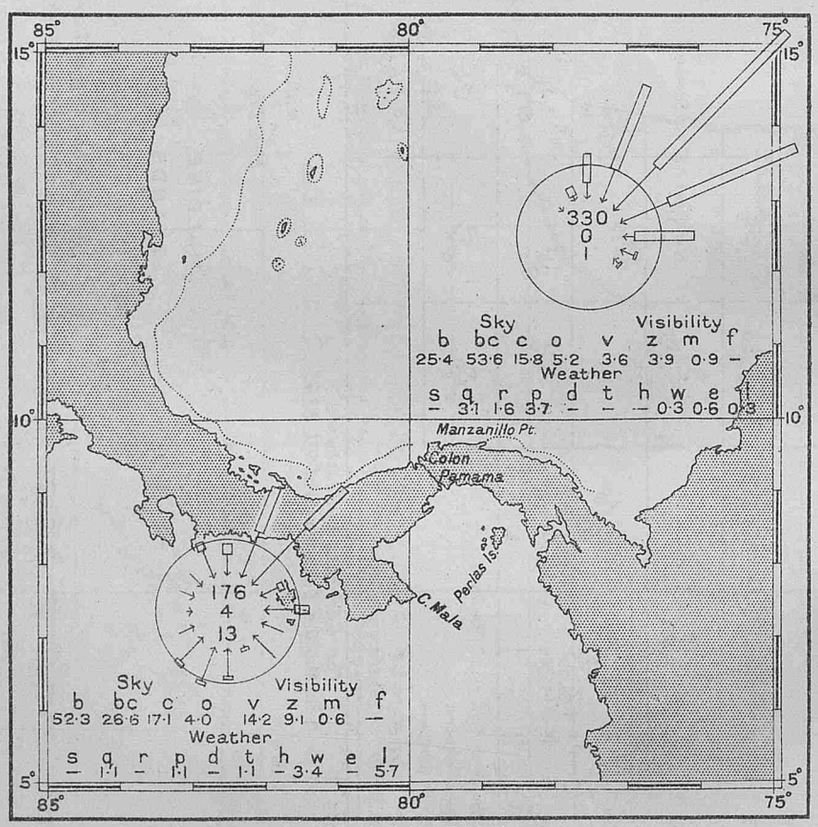
WIND FOR THE OCEAN REGION ADJACENT TO THE S.W. APPROACHES TO GREAT BRITAIN.



EXPLANATION.

The wind rose is drawn from observations within the 5° square. Arrows fly with the wind, length represents frequency, thickness strength. GALE MODERATE LIGHT 8 — 12 4 — 7 1 — 3 *Distance from head of arrow to circle represents 5%, Scale:-* 10% 20% *The upper figure in the centre of the rose gives total number of observations; the middle figure, the percentage frequency of calms; the lower figure the percentage frequency of variable winds.*

WIND, FOG, MIST AND WEATHER FOR THE OCEAN REGIONS TO THE N.E. AND S.W. OF THE PANAMA CANAL.



EXPLANATION.

The wind roses are drawn from Sea observations within the 5° squares. Arrows fly with the wind, length represents frequency, thickness strength. GALES MODERATE LIGHT 8 — 12 4 — 7 1 — 3 *Distance from head of arrow to circle represents 5%. Scale:-* 10% 20% *The upper figure in the centre of the rose gives total number of observations, The middle figure the percentage frequency of calms, and the lower figure the percentage frequency of variable winds. The percentage frequency of types of weather are shown in the lower half of each 5° square by the figures beneath each of the letters of the Beaufort weather notation. For example in the 5° square Latitude 5° to 10° N., Longitude 80° to 85° W., o was logged 4 times in every 100 observations while z was logged 9 times.*

Compiled from observations of British Ships received since the adoption of the Hollerith system of extraction covering the years 1921 – 1930.

H.M. Stationery Office Press, Kingsway, W.C. 2

Ps 333/2363. Wt 77A D.21. Gp.908. 1350. 1/32.

NOTICES.

POSTAL ARRANGEMENTS.

THE MARINE OBSERVER is published, when circumstances permit, on the first Wednesday of the month previous to that to which the number refers.

If captains of observing ships will forward to the Meteorological Office the particulars required hereunder, endeavour will be made as far as mails permit to post the latest number for use on their homeward passage.

S.S...... *Captain*.....

Port of Call.....

Date of Homeward Departure.....

Postal Address.....

When this information is not given THE MARINE OBSERVER is addressed to the Commanding Officer, s.s. ....., c/o the owners, and captains are requested to make their own arrangements for forwarding.

DESPATCH OF INFORMATION REQUIRED IMMEDIATELY FOR THE CONDUCT OF THE WORK AT SEA.

Shipowners, Marine Superintendents and all concerned in the despatch of mails to Ships abroad are asked to kindly facilitate the despatch and delivery of postal matter received at their offices from the Meteorological Office and Air Ministry Publication Depot to their Ships abroad.

This matter addressed to the Commanders of Ships contains information which is required for the Conduct of Marine Meteorological Work at Sea and is most effective if received by the Commanders at the earliest possible date.

Much of the information referred to is published in the Marine Observer and is of a seasonal nature. This journal also contains advice to Regular Observing Ships which enables them to perform voluntary service by Wireless Communication for the benefit of all shipping.

ICE REPORTS.

Commanders of ships in the Trans-North Atlantic and Southern Ocean Trades are earnestly requested to have the Ice Report Form 912 completed and returned at the end of each passage. A nil return is desired if no ice is seen.

These forms are supplied with THE MARINE OBSERVER each month to regular observing ships in these Trades.

"Selected Ships" on the Trade Routes of the Southern Ocean are requested to add to their routine Wireless Weather reports information of floating ice seen or reported within the last 24 hours so that this information may be disseminated to the utmost advantage of all concerned.

COVER FOR MARINE OBSERVER.

Marine observers, regular recipients and subscribers to this Journal are reminded that a binding cover for Volume VIII of "The Marine Observer" may be obtained from H.M. Stationery Office, through any bookseller, price 2s.

The arrangements for assembling the numbers for binding was described in Vol. VIII, No. 96, page 247.

It should be clearly understood that this cover is not the cover used for binding "Excellent" awards, which is far superior; but it will be found to be of good quality and a useful means of preserving the yearly numbers, for which a title page is issued with each December number.

ICE CHART.

WESTERN NORTH ATLANTIC.

LETTERS OF TRANSATLANTIC TRACKS INDICATE.

(C) From 1st July to 10th April, inclusive.

(D) From 15th February to 10th April, inclusive.

These routes are liable to alteration when, owing to abnormal ice conditions, it is considered advisable by the steamship lines who are parties to the Track agreement.

ROUTE NOTICES.

For latest information *re* Tracks *see* pages 87-88 of Vol. VIII, No. 88, April, 1931, Number, and Notice of Changes on the Ice Chart in May, 1931 number.

SYMBOLS USED ON THE CHART.

- Iceberg.
- Floeberg.
- Growler.
- Field Ice, Floe Ice, Pack Ice, Hummocky Ice, Bay Ice.
- Drift Ice, Brash Ice, Sludge Ice, Pancake Ice.
- Indicates W/T Ice Warning Station.

Clarke City
Anticosti I.
Heath Pt. Lt.V.
Fame Pt.
Father Pt.
GULF OF ST LAWRENCE
NEWFOUNDLAND
Magdalen Is.
Grindstone I.
VCN
St. Paul
Quebec
Prince Edward Is.
St. Pierre
VCO
Sydney
VAS
Montreal
St. John
NOVA SCOTIA
VAV
VCT
Sable Is.
Lurcher Lt.V.
VDR
C. Sable
Boston
NAD
Nantucket Lt.V.
New York
NAH
VCM
Belle Is.
VCE
Virgin Rocks
(C and D)
Limit of Ice reported to Meteorological Office MARCH 1901 - 1931

PHENOMENAL POSITIONS OF ICE.

Date.	Ship or Source of Report.	Position. Lat.	Position. Long.	Remarks.
March 24, 1913	S.S. Floride	46°21'N.	34°05'W.	Berg 60 ft. high, 200 ft. long.
„ 20, 1915	S.S. Wanaby	36°55'N.	48°32'W.	Piece—supposed portion of a berg 5 ft. high, 60 ft. long.
„ 21, 1920	U.S. Hyd. Bulletin ...	38°02'N.	40°38'W.	3 ft. high, 30 ft. long.
„ 21, 1921	S.S. Hollandia ...	37°50'N.	47°23'W.	Berg.

No Reports of Ice, sighted during the month of January, 1932, have been received at the Meteorological Office.

P-333/2363. Wt.774. D.21. Gp.908. 1350. 1/32.

MARCH M.O., 1932. H.M.Stationery Office Press, Kingsway W.C.2

NOTICES.

MARINE METEOROLOGY.

CO-OPERATION OF SHIPOWNERS, MASTERS AND MATES.

Captains and officers who wish to co-operate regularly with the Meteorological Office should apply to the appropriate Port Meteorological Officers or Agents, a list of these gentlemen with addresses is given below. A general description of Marine Meteorological Work, including the particulars desired from intending Marine Observers, is given in Chapter I of THE MARINE OBSERVER'S HANDBOOK, 5TH EDITION, which may be obtained from H.M. Stationery Office direct, or through any booksellers, price 2s. 6d.

The names of vessels regularly observing for the Meteorological Office, London, together with their Commanders and Observing Officers, are given monthly in THE MARINE OBSERVER, which may be obtained from H.M. Stationery Office, price 2s. 6d., 2s. 8d. post free.

The Captains and Officers of regular observing ships constitute the Corps of Voluntary Marine Observers. For certain branches of this work tested instruments are lent to the Captains of British ships registered at ports in Great Britain. A certain number of Regular Observing ships are detailed as "Selected Ships" for the purpose of the World Wide Scheme of Routine Ships' Wireless Weather Telegraphy Reporting. These "Selected Ships" are indicated monthly in the "Fleet List" in THE MARINE OBSERVER by a number.

To decode "Selected Ships'" reports the pamphlet M.O. 329, price 3d. may be obtained from H.M. Stationery Office.

Only ships registered at Ports in Great Britain will, in future, be included in the Meteorological Office, London, "Fleet List."

Marine Observers are asked to send in their Meteorological Log through the appropriate Port Meteorological Officer or Agent (accompanied by Form 138 in the case of "Selected Ships") at intervals of not more than six months. The Meteorological Record Form 911 (accompanied by Form 138 in the case of "Selected Ships") should be posted direct to the Meteorological Office, London, at the end of each voyage.

When sending in the Meteorological Log or Record, Regular Observing ships will render great assistance if they will notify the Port Meteorological Officer or Agent of their requirements.

The Port Meteorological Officers and Agents inspect official instruments at regular intervals, replacing those which are defective.

Where ships' instruments are found by comparison to be reliable they may be used for the work of "Selected Ships." A reliable mercurial barometer is essential as part of the equipment of a "Selected Ship."

A copy of THE MARINE OBSERVER is sent monthly to the Captain of every observing ship for the information and guidance of the officers doing this work. He is also supplied with THE MARINE OBSERVER'S HANDBOOK and such charts and atlases as are considered necessary as Meteorological equipment for **The Work** of a Regular Observing ship in a particular trade.

WIRELESS AND WEATHER AN AID TO NAVIGATION, published by H.M. Stationery Office, which affords information and guidance for the practical application of Marine Meteorology to Navigation, may be purchased through any bookseller, price 5s.

Returns made by Regular Observing ships are acknowledged monthly in THE MARINE OBSERVER, and a list of those Commanders and Officers who have performed specially fine work is published yearly in THE MARINE OBSERVER and Excellent Awards are made to them.

The work done by Regular Observing Ships in making written returns, and by "Selected Ships" in broadcasting routine information by W/T, together with "Weather Shipping" Bulletins broadcast from the shore, conforming with the recommendations of the International Convention of Safety of Life at Sea, 1929, provide the necessary information for the use of all shipping. Thus by shipowners encouraging the specialist work in those of their ships whose names appear in THE MARINE OBSERVER, this Voluntary Work under the supervision of the Meteorological Office provides a service to all shipping at minimum cost to the National funds.

Shipowners are asked to facilitate the forwarding of postal matter from the Air Ministry addressed to the Captains of their ships.

LATE PRESS.

DERELICTS AND FLOATING WRECKAGE.

Date.	Position. Latitude.	Position. Longitude.	Description.
ENGLISH CHANNEL.			
10.1.32	49°24′N.	3°25′W.	Drifting wreck of a dandy : dangerous to navigation.
14.1.32	50°32′N.	0°22′W.	Drifting buoy, cone shape.
15.1.32	50°49′N.	1°20′E.	Unlighted whistling buoy.
16.1.32	50°24′N.	0°37′W.	Spar buoy painted black and red horizontal stripes.
20.1.32	50°20′N.	0°50′W.	Drifting lifeboat, green coloured, boat was empty.
HEBRIDES.			
14.1.32	57°59′N.	6°25′W.	Partly submerged wreckage ; resembled vessel bottom upwards or raft showing 30–40 feet.
NORTH ATLANTIC.			
2.1.32	47°57′N.	15°42′W.	Large spherical iron buoy, about 12 ft. in diameter.
2.1.32	39°51′N.	73°50′W.	Partly submerged derelict scow with a timber 12 in. square projecting about 8 ft. out of water.
4.1.32	48°07′N.	5°32′W.	Conical buoy ; dangerous to navigation.
4.1.32	33°16′N.	78°02′W.	Iron buoy, painted in red and black horizontal bands.
5.1.32	38°20′N.	69°40′W.	Spar about 40 ft. long and 3 ft. in diameter.
GULF OF MEXICO.			
1.1.32	23°50′N.	81°38′W.	Floating obstruction.
2.1.32	28°26′N.	88°45′W.	Clusters of large tree trunks and roots covering an area of about 1 mile. Some of these obstructions are partly submerged.
2.1.32	28°08′N.	88°08′W.	Log about 90 ft. long and 2 ft. in diameter.
6.1.32	26°35′N.	87°22′W.	Tree trunk about 40 ft. long and 3 ft. in diameter.
8.1.32	28°04′N.	89°14′W.	Several large logs and tree trunks about 30 ft. long and 2 ft. in diameter : numerous smaller logs in the vicinity.
8.1.32	29°57′N.	85°41′W.	Decked scow 84 ft. long and 28 ft. beam adrift.
NORTH PACIFIC.			
1.1.32	7°08′N.	81°28′W.	Large tree trunk about 25 ft. long and from 4 to 5 ft. in diameter.
5.1.32	29°20′N.	137°55′W.	Log about 20 ft. long and 2 ft. in diameter, covered with barnacles.
5.1.32	29°16′N.	138°09′W.	Log about 15 ft. long and 1½ ft. in diameter, covered with barnacles.

NAUTICAL OFFICERS AND AGENTS OF THE MARINE DIVISION OF THE METEOROLOGICAL OFFICE, AIR MINISTRY.

LONDON ... ... Captain L. A. BROOKE SMITH, R.D., R.N.R., Marine Superintendent.
Commander J. HENNESSY, R.D., R.N.R., Senior Nautical Assistant.
Room 319, Adastral House, Kingsway, W.C.2.
(*Telephone No.: Holborn 3434 Extension 421*).
Nearest station Temple, District Railway.

THAMES ... ... Lieut. Commander C. H. WILLIAMS, R.N.R., Port Meteorological Officer, P.L.A. Building, King George V Dock (south side), London, E.16.
(*Telephone No.: Albert Docks 2659. Telegraphic Address: Barometric Aldock, London*).

MERSEY ... ... Commander M. CRESSWELL, R.N.R., Port Meteorological Officer, Dock Office, Liverpool.
(*Telephone No.: Bank 8959. Telegraphic Address: Meteorite, Liverpool*).

Agents.

BELFAST ... ... Captain J. MCINTYRE, Harbour Master, Harbour Office. (*Telephone No.: Belfast 4090*).

BRISTOL CHANNEL — Captain T. JOHNSTON, Technical College, Cathays Park, Cardiff. (*Telephone No.: Cardiff 6813*).

CLYDE ... ... Mr. ROBERT CLEARY, Master Mariner, The Clutha Stevedoring Co., Ltd., Princes Dock, Glasgow. (*Telephone No.: 513 Ibrox*).

FORTH ... ... Captains C. G. BONNER, V.C., D.S.C., and D. AITCHISON, Leith Salvage and Towage Co., Ltd., 2, Commercial Street, Leith.

Agents (*contd.*).

FREMANTLE, W. Australia. ... Captain J. J. AIREY, Deputy Director of Navigation, Customs House.
(*Telephone No.: B 1391*).

HONG KONG, China. — Lieut. Commander G. B. R. RUDYERD-HELPMAN, R.N., Superintendent, Admiralty Chart and Chronometer Depot, H.M. Dockyard.
(*Telephone No.: 108 Dockyard*).

HUMBER ... ... Captain A. M. BROWN, Ellerman Wilson Line Office, Hull. (*Telephone No.: Central 2180*).

SOUTHAMPTON — Mr. R. I. T. MCEWAN, Master Mariner, Gilchrist Navigation School, 5, Union Bank Chambers, 1, Bernard Street. (*Telephone No.: Southampton 4277*).

SYDNEY, New South Wales. — Commander G. D. WILLIAMS, D.S.O., R.D., R.N.R., Deputy Director of Navigation.
Customs House.
(*Telephone No.: B 6421*).

TYNE ... ... Captain J. J. MCEWAN, Marine School, South Shields.

FLEET LIST.

The following is a complete list of ships regularly contributing observations to the Meteorological Office.

The names of the Captains and Officers, as ascertained from logs and records received, are given with the date and description of last log, register or record received up to the time of going to press.

Marine Observers are requested to take this as complete and grateful acknowledgment for the work they have contributed, as it has been found necessary to reduce as far as possible the correspondence of the Marine Superintendent, which was largely composed of letters acknowledging logs and reports, in order that more time may be devoted to obtaining results from the data received.

Only in special cases will individual letters be sent.

Excellent awards will be made at the end of the financial year. The names of Commanders and Officers gaining these awards will be published in a special list in THE MARINE OBSERVER.

Ships not contributing logs or records within a reasonable period will automatically be removed from the list and the free issue of THE MARINE OBSERVER discontinued; it is, therefore, earnestly requested that changes of service, probable periods of lay up or transfer of Commanders may be notified whenever possible.

A waiting list is kept of the names of vessels whose Commanders have offered to regularly co-operate.

The number of voluntary observing ships is limited to a maximum total of 500.

Commanders are requested to point out any errors which may occur in the list.

Explanation of Abbreviations.

Unless otherwise stated, vessels on the following list are s.s.—M.V. indicates Motor Vessel; S.T. = Steam Trawler.

M.L. = Equipped with tested Instruments lent by the Meteorological Office for keeping Meteorological Logs.

W.T. = Equipped wholly or partly with tested Instruments lent by the Meteorological Office for reporting in code by W/T in the International Selected Ship system.

No. = No Meteorological Office instrumental equipment on board.
M = Ship's barometer *mercurial.*
A = Ship's barometer *aneroid.*

C.C. = Equipped with tested Instruments lent by the Meteorological Office for making Cross Channel Telegraphic Reports to Weather, London.

To indicate the nature of the wireless apparatus of Selected Ships—

†† preceding ship's name indicates fitted for long range continuous wave transmission and reception.

*† = Short range transmission and long range continuous wave reception.

** = Short range transmission and reception.

The numbers preceding the names of ships are for identification purposes, when observations are re-transmitted in synoptic messages by wireless or cable, and are not intended for use at sea.

Selected Ships.

Those ships in this list which have a number and symbols indicating W/T apparatus before their names are "Selected Ships" invited to make by W/T, reports of observations taken at arranged G.M. Times to "All Ships."

Name of Vessel	Captain.	Observing Officers.	Meteoro-logical Equipment.	Line.	Last Log, Register, or Record Contributed. Received up to 15.1.32.	Date Received.
122 †† *Accra*, M.V. ...	Shooter, J. C.... ...	R. B. Ellis	W.T.-M.	Elder Dempster ...	Forms 911 & 138 16.11.31 to 21.10.31	17.12.31
155 *† *Achilles*	Cosker, W.	C. Broad, J Simpson, J. S. Stratford.	M.L.	A. Holt	Form 915 28.3.31 to 4.8.31 ...	10.8.31
055 *† *Actor*	Whyte, D. L.	G. Penston, E. Pearce, P. Harrow.	No. M.	Harrison	Forms 911 & 138 26.2.31 to 1.5.31	21.5.31
123 †† *Adda*, M V. ...	Lawson, J. H. ...	J. Boyd, F. C. Langton ...	W.T.-M.	Elder Dempster ...	„ „ 5.11.31 to 14.12.31	21.12.31
050 †† *Adriatic*	Freeman, C. P., R.D., Commr., R.N.R.	G. Steele, G. Walters, A. Cherry,	W.T.	White Star	„ „ 6.12.31 to 25.12.31	29.12.31
090 *† *Aeneas*	Wallace, W. K. ...	T. Robb, H. D. Rudd, P. Dunsire.	„	A. Holt	Form 911 13.5.31 to 19.6.31 ...	20.6.31
166 *† *Agamemnon* ...	Beswick, W., D.S.C., Commr., R.N.R.	W. K Hole, O. V. Jones, G. M. B. Whitman.	„	„	Forms 911 & 138 3.11.31 to 13.11.31	18.11.31
127 *† *Albion Star* ...	Hall, J. B.	T. Gilchrist	No M.	Blue Star	Form 911 8.7.31 to 29.10.31 ...	25.11.31
080 †† *Alcantara*, M.V. ...	Wakeman, E. C. ...	W. W. Dovell, T. Davies, R. C. Smith.	W.T.	R.M.S.P.	„ 19.9.31 to 2.11.31 ...	6.11.31
178 *† *Alipore*	Lyndon, E. P., R.D., Lt.-Commr., R.N.R.	J. P. McArthur	No. M.	P. & O.	„ 15.11.31 to 23.11.31 ...	14.12.31
175 †† *Almanzora* ...	Hannam, F. S. ...	G. W. Martin, F. J. Bett, J. G. Scott.	W.T.	R.M.S.P.	„ 30.10.31 to 15.12.31 ...	16.12.31
012 †† *Almeda Star* ...	Turner Russell, W ...	H. Metcalf, E. Russell, C. L. Williams.	No. M.	Blue Star	Forms 911 & 138 16.11.31 to 30.12.31	5.1.32
Alondra	Scott, L. S.	E. W. Thomas	„ A.	Yeoward	Form 911 23.11.31 to 13.12.31 ...	23.12.31
Alynbank	Robertson, J.... ...	A. Hunter	„ A.	A. Weir & Co. ...	„ 26.10.31 to 18.11.31 ...	7.12.31
103 †† *Andalucia Star* ...	Vernon, R.	W. Cumming, P. Clarke. A. Holland.	„ M.	Blue Star	Forms 911 & 138 2.11.31 to 15.12.31	23.12.31
Antilochus ...	Dougall, W. T. ...	C. F. Lock	„ A.	A. Holt	Form 911 9.11.31 to 7.12.31 ...	4.1.32
209 †† *Aorangi*, M.V. ...	Spring-Brown, J. F.	E. Anderson, D. H. Richards, J. S. Madden.	M.L.	Canadian-Australasian	Form 915 23.7.31 to 5.11.31 ...	7.1.32
120 †† *Apapa*, M.V. ...	Beith, A.	V. Feeney, V. H. Thomas ...	W.T.-M.	Elder Dempster ...	Forms 911 & 138 19.11.31 to 28.12.31	31.12.31
029 †† *Appam*	Draper, J. M	W. M. M. Hutchings, C. V. Evans. H. O. Forster.	W.T.	„ „ ...	„ „ 2.12.31 to 13.1.32	15.1.32
017 †† *Aquitania*	Irving, R. B., O.B.E. R.D., A.D.C., Capt., R.N.R.	B. Toyne, G. F. Jeffries, D. M. Maclean.	„	Cunard...	„ „ 18.12.31 to 1.1.32	4.1.32
Araby	Lee. J., D.S.C.... ...	H. Haigh	No. A.	MacIver	Form 911 28.9.31 to 10.12.31 ...	14.12.31
115 †† *Arandora Star* ...	Moulton, E. W. ...	H. F. Partridge, F. Graham	„ M.	Blue Star	Forms 911 & 138 19.12.31 to 7.2.31	8.1.32
Architect	Mowat, I.	G. Dewar	„ M.	Harrison	„ „ 2.8.31 to 29.10.31	16.11.31
293 *† *Ariguani*	Scudamore, J. H. H., D.S.C., R.D., Commr., R.N.R.	B. E. Druce, A. Crone, A. F. Moss.	M.L.	Elders & Fyffes ...	Form 915 4.5.31 to 1.9.31	4.9.31
144 †† *Arlanza*	Clarke. E., R.D., Commr., R.N.R.	S. A. Gammon, H. V. Todd, F. T. Brett.	W.T.	R.M.S.P.	Forms 911 & 138 1.8.31 to 14.9.31	16.9.31
091 †† *Armadale Castle* ...	Harvey, H. B. ...	W. Pace, A. H. Parry ...	„	Union Castle	„ 14.11.31 to 2.1.32 ...	5.1.32
296 *† *Arracan*	Thomson, S.	G. Davidson, H. H. Brown, J. P. Anderson.	M.L.	P. Henderson ...	Form 915 5.9.31 to 15.11.31 ...	14.12.31
Arundel	Shaw, B.	E. Hill	C.C.	Southern Rly. ...	Telegraphic Report 14.1.32 ...	14.1.32
095 †† *Arundel Castle* ...	Stuart, C. E., R.D., Capt., R.N.R.	G. L. Clarke, H. Baty	W.T.	Union Castle ...	Forms 911 & 138 19.9.31 to 4.10.31	16.11.31

Name of Vessel.	Captain.	Observing Officers.	Meteoro-logical Equipment.	Line.	Last Log, Register, or Record Contributed, Received up to 15.1.32.	Date Received.
280 *† *Astronomer* ...	Richards, J.	W. P. Baker, R. Williams, E. B. Stephens.	No. M.	Harrison	Forms 911 & 138 5.7.31 to 7.10.31	13.10.31
065 †† *Asturias* M.V. ...	LeBrecht, H. A. ...	H. G. Whittle, S. J. Hill, T. W. Stevens.	W.T.	R.M.S.P. Co.	„ „ 10.10.31 to 23.11.31	25.11.31
Atreus	Wilcox, J. H.	E. A. H. Gepp	No. A	A. Holt	Form 911 7.6.31 to 21.9.31... ...	5.10.31
281 *† *Auditor*	Owen. W. T. ...	L. Richardson	„ M.	Harrison	Forms 911 & 138 2.8.30 to 29.9.31...	14.10.31
212 *† *Australia*	Scutt, W.	H. Falkiner. E. H. Lidstone, L. Smith.	M.L.	British India	Form 915 28.3.31 to 28.7.31 ...	4.8.31
124 †† *Avila Star*	Fisher, J.	W. J. Stratta, C. Barratt, R. C. Freaker.	No. M.	Blue Star	Forms 911 & 138 27.9.31 to 12.11.31	19.11.31
068 †† *Balmoral Castle* ...	Barron. A.	... ...	W.T.	Union Castle	.. ..	...
179 *† *Balvanald*	Short, C. E.	J. A. Stewart, P. Mallett, C. S. Pine.	No. M.	P. & O. Branch ...	Forms 911 & 138 10.12.31 to 1.1.32	13.1.32
051 †† *Baltic*	Hume, R.	S. Boden, J. Quayle, W. G. B. Jones.	W.T.	White Star	„ „ 23.11.31 to 10.1.32	13.1.32
248 *† *Banffshire*	Page, W. J.	A. Banks. F. Westacott ...	No. M.	Turnbull Martin ...	„ „ 8.8.31 to 28.10.31	12.12.31
180 *† *Baradine*	Elliot Smith, H. ...	C. F. Halliday, J. Mann, G. L. Farnfield.	„ M.	P. & O. Branch ...	Form 915 1.8.31 to 4.11.31 ...	9.11.31
037 *† *Baronesa*	Compton, R. W. ...	H. N. Sherwell, F. W. Kent, J. G. Freeman.	„ M.	Houlder	Forms 911 & 138 10.8.31 to 14.10.31	19.10.31
213 *† *Barpeta*	Partridge, H. ...	L. F. Harvey, A. J. Baillie ...	„ M.	British India	Forms 911 & 138 28.10.31 to 25.11.31	14.12.31
181 *† *Barrabool*	Sheepwash, J. S. ...	F. N. Mosey, G. Hussey, J. Jones.	„ M.	P. & O. Branch ...	„ „ 12.9.31 to 18.12.31	29.12.31
070 †† *Bayano*	Legge, A. W.	G. Milne	W.T.	Elders & Fyffes ...	Form 911 1.12.31 to 4.1.32	11.1.32
Beaverburn ...	Landy, E.	... ...	M.L.	Canadian Pacific ...	... ...	...
059 †† *Belgenland* ...	Morehouse, W. A. ...	F. Good, J. Mackie, J. R. Loe.	W.T.	Red Star	Forms 911 & 138 3.11.31 to 21.11.31	24.11.31
183 †† *Bendigo*	Wyatt, F. N.	H. Morgan, R. S. Frost, G. C. Forrest.	No. M.	P. & O. Branch ...	„ „ 8.11.31 to 7.12.31	4.1.32
Bengore Head ...	Milligan J.	C. J. Rea	„ A.	Ulster S.S. Co. ...	Form 911 22.11.31 to 27.11.31 ...	1.12.31
237 †† *Berengaria*	Britten, E. T., R.D., Commr., R.N.R.	J. A. Croasdaile, J. V. Locke, W. B. Tanner.	W.T.	Cunard	Form 138 3,12.31 to 17.12.31 ...	19.12.31
145 *† *Berwickshire* ...	Evens, E. H.	E. Coulthart, J. O. Woodall, R. Frankish.	„	Turnbull Martin ...	Forms 911 & 138 27.9.31 to 19.10.31	9.11.31
Brenda	Wright, J.	L. G. Fraser	No. A.	Scottish Fishery Brd.	Form 911 2.12.31 to 30.12.31 ...	4.1.32
057 †† *Britannic* M.V. ...	Summers, F. F. R.D., Commr., R.N.R.	G. N. Jones, H. P. Grindrood, A. J. Fisher.	W.T.	White Star	Forms 911 & 138 14.12.31 to 20.12.31	4.1.32
269 *† *British Admiral* ...	Putt, R. O.	H. J. Were, W. Barnsfield ...	No. M.	British Tankers ...	„ „ 17.12.31 to 28.12 31	9.1.32
283 *† *British Dominion*	Taylor, R. J.	J. E. Jones, F. Hall	„ M.	„ „ ...	„ „ 22.8.31 to 3.11.31	6.11.31
266 *† *British Lantern* ...	Penton. P. M.... ...	T. Snowling, L. Hambling, D. Malcolm.	„ M.	„ „ ...	„ „ 30.11.31 to 26.12.31	8.1.32
249 *† *Buteshire*	Gibb, A. W. P. ...	P. McMillan, S. W. Brown, F. C. Doyle.	M.L.	Turnbull Martin ...	Form 915 22.10.30 to 3.3.31 ...	29.12.31
031 †† *Caledonia*	Collie, A.	R. Blake, J. Green, R. Macfee	W.T.	Anchor...	Forms 911 & 138 13.12.31 to 22.12.31	4.1.32
139 †† *California*	Smart, R. W.	D. Morrison, A. C. Johnston, J. F. Adams.	„	„	„ „ 22.6.31 to 6.12.31	10.12.31
Cambria	Copland. C. P. ...	O. W. Ll. Jones	C.C.	L.M. & S. Rly.... ...	Telegraphic Report 26.12.31 ...	26.12.31
190 *† *Cambridge*	Williams, R.	T.Farrar	M.L.	Federal	Form 911 17.7.31 to 10.11.31 ...	23.11.31
295 †† *Camito*	Forrester, W. T., O.B.E.	C.P.Hopper, H. J. Perrett. W Ireland	„	Elders & Fyffes ...	Form 915 24.6.31 to 18.10.31 ...	23.10.31
Cape of Good Hope	Jacobson, T. A. ...	W. R. Carling	No. A.	Lyle S.S. Co.	Form 911 3.11.31 to 26.11.31 ...	31 12 31
282 †† *Carinthia*	Townley, J. C., R.D., Capt., R.N.R.	J. Chapman, A. B. Fasting, G. S. Hutchinson.	W.T.	Cunard	Forms 911 & 138 12.10.31 to 17.10.31	3.11.31
092 †† *Carnarvon Castle* M.V.	Morton Betts, W. ...	G. F. Pettitt, E. Clancy ...	„	Union Castle ...	„ „ 25.10.31 to 13.12.31	15.12.31
273 *† *Carnarvonshire* ...	Gulston, H. S. ...	S. W. Spencer	No. M.	Glen	„ „ 4.10.31 to 3.11.31	9.11.31
184 †† *Cathay*	Daziell Riven, J. ...	A. J. McHatlie. J. C. Davies, G. S. Ring.	„ M.	P. & O	„ „ 16.11.31 to 27.11.31	29.12.31
Cavina	Riseley, A. D. ...	B. R. Coe	„ A.	Elders & Fyffes ...	Form 911 5.10.31 to 9.11.31 ...	12.11.31
157 *† *Centaur* M.V. ...	Ward Hughes, J. ...	B. L. Brind. D. R. Bannerman, F. Widdows.	M.L.	A. Holt & Co. ...	Form 915 28.1.31 to 16.11.31 ...	28.12.31
056 †† *Ceramic*	Lloyd, W.	A. Waters	W.T.	White Star	Forms 911 & 138 16.11.31 to 12.12.31	18.12.31
Cerinthus M.V. ...	Ramsay, N.	E. Allen, C. L. Seaman, V. H. Kirkland.	M.L.	Hadley Shipping ...	Form 915 2.7.31 to 2.10.31 ...	10.10.31
Changuinola ...	Bostock, R. J. ...	O. H. Pulman	No. A.	Elders & Fyffes ...	Form 911 12.10.31 to 23.10.31 ...	27.10.31
Chinduin	Paterson, G.	J. A. Wilson	„ A.	Henderson	„ 29 8.31 to 11.11.31 ...	1.12.31
Chirripo	Carden, H.	S. Waddington, C. E. Gardiner.	„ A.	Elders & Fyffes ...	„ 1.12.31 to 2.1.32 ...	8.1.32
192 †† *Chitral*	Siggers, O.	T. D. Forbes, W. S. Jolliffe, S. H. Gerrans.	„ M.	P. & O.	Forms 911 & 138 28.11.31 to 8.12.31	4.1.32
265 *† *City of Baroda* ...	Bremner, D. M. ...	J. C. Dodsworth, H. G. Williams, E. Bonfield.	W.T.	Ellerman	Form 915 22.8.31 to 17.10.31 ...	21.10.31
City of Cambridge	Ewing, W.	H. H. Asher	No. A.	„	Form 911 20.9.31 to 19.11.31 ...	21.12.31
City of Carlisle ...	Mordue, J. A. ...	... ...	„ A.	„	„ 1.12.31 to 3.1.32 ...	5.1.32
061 †† *City of Exeter* ...	Nichol, L.	H. Burns, J. Fyfe, W. V. Mighton.	W.T.	„	Form 911 & 138 30.10.31 to 1.1.32	9.1.32
274 *† *City of Harvard* ...	MacMillan, J.... ...	F. Deighton, E. Brook-Williams, S. W. Dutton.	„	„	Form 915 15.8.31 to 5.12.31 ...	16.12.31
089 *† *City of Hereford* ...	Ricketts, R. J. ...	F. Tibbetts. J. H. T. Vizer ...	No. M.	„	Forms 911 & 138 15.11.31 to 2.12.31	12.12.31
026 †† *City of London* ...	Brown, J. G.	A. J. Barnett, E. Gillies, C. MacPherson.	W.T.	„	„ „ 2.12.31 to 20.12.31	22.12.31
City of Nagpur ...	McNiel, N.	J. W. Wotherspoon, J. Campbell. W. Kerr.	„	„	„ „ 27.9.31 to 18.10.31	21.12.31
300 †† *City of Paris* ...	McMillan, J.	J. Cook, E. A. Davidson, W. Charlton.	„	„	„ „ 11.10.31 to 1.11.31	4.1.32
271 *† *City of Roubaix* ...	Radcliffe, A. V., R.D., Lt.-Commr., R.N.R.	L. C. Davies, J. L. Robertson, A. N. G. Jones	No. M.	„	Form 138 15.10.31 to 31.12.31 ...	4,1.32
272 *† *City of Singapore*	Kendall. J. W. ...	F. Wrigley. C. C. Collard ...	„ M.	„	Forms 911 & 138 12.8.31 to 22.11.31	19.12.31
035 *† *City of Sydney* ...	Mason, E.	H. Griffith	„ M.	„	„ „ 1.12.31 to 8.12.31	16.12.31
Clan Alpine ...	Young, A. H., R.D., Commr., R.N.R.	A. G. M. Watkins	„ A.	Clan	Form 911 23.10.31 to 23.11 31 ...	24.12.31
027 *† *Clan Keith*	Waterhouse, J. ...	W. N. Todman. A. H. Black, D. W. Gibbons.	W.T.	„	Forms 911 & 138 1.11.31 to 23.11.31	12.12.31
Clan Macalister ...	Stenson, F. J., A.D.C., R.D., Capt., R.N.R.	J. L. Jones	„ A.	„	„ 17.10..31 to 6.1.32 ...	11.1.32

Name of Vessel.	Captain.	Observing Officers.	Meteoro-logical Equipment.	Line.	Last Log, Register, or Record Contributed. Received up to 15.1.32.	Date Received.
Clan Macbeth ...	Giles. H. J., R.D. R.N.R.	I. Cape Scott., L. W. Gibbons.	No. A.	Clan	Form 911 29.11.31 to 22.12.31 ...	30.12.31
Clan Macfarlane ...	Redford, L. F., Lt.-Commr. R.N.R.	W. H. Simpson	,, A.	,, ...	21.7.31 to 17.10.31 ...	19.10.31
Clan Macindoe ...	Scott-Smith, H. E. G. O.B.E., R.D., Lt.-Commr., R.N.R.	J. C. Dunphy	., A.	,, ...	,, 14.11.31 to 7.12.31 ...	11.1.32
33 *† *Clan Mackellar* ...	Lyall, A. B.	A. V. Howard, G. S. Bullock, L. B. Sparkes.	W.T.	,, ...	Form 915 25.5.31 to 26.10.31 ...	9.11.31
001 *† *Clan Macphee* ...	Gibb, A. W. P. ...	E. H. Stone, G. Drake S. N. Werry.	,,	,, ...	Forms 911 & 138 26.10.31 to 19.11.31	11.1.32
004 *† *Clan MacNair* ...	Holman, W. G. ...	F. H. Petheridge. A. Woodrow, J. F. Vooght.	,,	,, ...	,, ,, 18.7.31 to 20.10.31	21.10.31
002 *† *Clan Macwhirter* ...	O'Bryne, C. E. ...	M. J. Lewis, H. Whitehead, C. Rodger.	,,	,, ...	Form 915 11.6.31 to 30.10.31 ...	7.11.31
003 *† *Clan Malcolm* ...	George, L. S.	A. Lynch, H. Hind, R. W. Cook.	,,	,, ...	,, 27.8.31 to 6.1.32 ...	14.1.32
Clan Morrison ...	Porterfield, W. M., Lt.-Commr., R.N.R.	H. W. Peletier, W. Leck, A. G. Beynon.	No. A.	,, ...	Form 911 2.12.31 to 27.12.31 ...	31.12.31
Clan Ranald ...	Hawley, F. J. ...	H. C. Carter	,, A.	,, ...	,, 5.11.31 to 29.11.31 ...	21.12.31
Clan Sinclair ...	Cater, H.	D. Mc Allister	,, A	,, ...	,, 17.11.31 to 5.12.31 ...	21.12.31
Colonial	Baird, W.	W. Moore, A. P. Brown, A. Smart.	,, M.	Harrison	,, 16.10.31 to 16.11.31 ...	20.11.31
298 *† *Comedian*	Cadogan, A.	F. M. Eales, W. G. Ellis ...	,, M.	,, ...	,, 22.10.31 to 17.12.31 ...	22.12.31
185 †† *Comorin*	Cartright, C.W., D.S.C.	R. E. Tucker	,, M.	P. & O.	Forms 911 & 138 21.8.31 to 27.10.31	30.10.31
198 *† *Contractor*	Owen, W. J.	W.G. Neill, L.Siddon, R. Myles	,, M.	Harrison	,, ,, 28.11.31 to 12.12.31	1.1.32
049 *** *Coptic*, M.V. ...	Williams, G.	J. G. James, P. Saville, W. Burt.	W.T.	Shaw, Savill & Albion	,, ,, 26.11.31 to 27.12.31	1.1.32
100 *† *Cornwall*	Almond, J. G. ...	W. H. G. Timberlake... ...	M.L.	Federal	Form 911 17.4.31 to 21.5.31 ...	28.5.31
006 †† *Coronado*	Thorburn, R. A. ...	A. Orchard, J. Bell, H. Holmes.	W.T.	Elders & Fyffes ...	Forms 911 & 138 28.10.31 to 29.11.31	7.12.31
214 *† *Counsellor*	Jackson, J.	G. C. Heaton, J. Davidson, J. L. Curle.	No. M.	Harrison	,, ,, 26.9.31 to 12.11.31	27.11.31
301 *† *Culebra*	Goble, C. J.	H. D. Hooper, T. Davies, H. A. Wright.	M.L.	R.M.S.P. Co.	Form 915 11.5.31 to 29.9.31 ...	14.10.31
036 *† *Cumberland* ...	Maltby, T. L.	... ...	,,	Federal	... ...	...
285 *† *Custodian*	O'Connor, T.	W. H Corlett, J. L. Williams, J. Glen.	No. M.	Harrison	Forms 911 & 138 30.7.31 to 1.11.31	9.11.31
Dakarian	Brown, W.	A. A. Johnson	No. A.	Leyland	Form 911 25.10.31 to 20.12.31 ...	29.12.31
302 †† *Darro*	Green, J.	A. J. Barff	W.T.-M.	R.M.S.P. Co.	Forms 911 & 138 29.10.31 to 13.12.31	22.12.31
Davisian	Thomas, R.	... ...	No. A.	Leyland	Form 911 15.1 .30 to 10.1.32 ...	15.1.32
303 †† *Demerara*	Matthews. G. P. ...	W. Edington, L. T. Peterson	W.T.-M.	R.M.S.P. Co.	Forms 911 & 138 27.9.31 to 19.11.31	24.11.31
Denis	Griffiths, W.	A. W. Hanchett, J. H. Stoker, S. Pollock.	M.L.	Booth	Form 915 10.6.31 to 10.11.31 ...	9.12.31
304 †† *Deseado*	Buret, J. F. C. ...	T. Jeyes	W.T.-M.	R.M.S.P. Co.	Forms 911 & 138 8.11.31 to 31.12.31	4.1.32
117 †† *Desna*	Huff, G.	H. Lang. J. E. Matthews ...	,,	,, ...	,, ,, 13 9.31 to 4.11.31	14.11.31
252 *† *Devon*	Clarke, P. B.	G. Chaplin, J. D. Marks. M. Willinott.	No. M.	Federal	,, ,, 20.9.31 to 28.10.31	14.12.31
Dieppe	Lidbetter. W.... ...	E. A. Biles	C.C.	Southern Railway ...	Telegraphic Report 15.1.32 ...	15.1.32
284 *† *Director*	Worthington, B. ...	M. G. O'Brien, A. E. Rogers. H. W. Jones.	No. M.	Harrison	Forms 911 & 138 15.9.31 to 30.11.31	15.12.31
138 *† *Discovery II.*, R.R.S	Carey, W. M., Commr., R.N.	R. A. B. Ardley, A. L. Nelson, L. C. Hill.	M.L.	Falkland Is. Govt. ...	Form 915 31.3.31 to 31.5.31 ...	30.9.31
Dorelian	Hugan, C.	J. A. Kendall	No. A.	Leyland	Form 911 20.3.31 to 25.5.31 ...	1.6.31
136 *† *Doric Star*	Mills, D. H.	— Anderson	No. M.	Blue Star	... ...	...
275 *† *Dramatist*	Meek, A. J.	G. H. Howard, I. W. Page, R. Bryde.	,, M.	Harrison	Forms 911 & 138 29.11.31 to 22.12.31	1.1.32
142 †† *Duchess of Atholl*...	McQueen, D. S. ...	G. Mowatt, C. D. Watt, E. Glennie.	W.T.-M.	Canadian Pacific ...	,, ,, 15.11.31 to 3.12.31	8.12.31
152 †† *Duchess of Bedford*	Stuart, R. N., V.C., D.S.O., Commr., R.N.R.	J. Roche, A. Antrobus, F. Stell.	,,	,, ,, ...	,, ,, 29.11.31 to 18.12.31	24.12.31
151 †† *Duchess of Richmond.*	Freer, A., Capt., R.N.R.	W. A. Stanley	,,	,, ,, ...	,, ,, 6.12.31 to 22.12.31	31.12.31
143 †† *Duchess of York* ...	... .	D. Parsons, J. B. Saunders ...	,,	,, ,, ...	,, ,, 1.11.31 to 19.11.31	26.11.31
098 †† *Dunbar Castle*, M.V	Vincent, E. S., R.D., Commr., R.N.R.	J. Daziel, T. W. McAllen, P. G. MacIver.	W.T.	Union Castle	,, ,, 20.10.31 to 7.11.31	10.11.31
Dunrobin	Ramsay, J. D. ...	W. R. Holt, J. Y. Butt ...	No. A.	Glen & Co.	Form 911 12.11.31 to 2.1.32 ...	14.1.32
052 *† *Dunster Grange* ...	Wilson, G. F.	J. Allerton, E. G. Raynor, D. Murray.	,, M.	Houlder	Forms 911 & 138 11.10.31 to 15.12.31	18.12.31
102 *† *Duquesa*	Frost, C. R.	R. Rushton, C. W. Denman, F. D. Jones.	,, M.	Furness Withy ...	,, ,, 23 8.31 to 4.11.31	9.11.31
15 *† *Durenda*, M.V. ...	Blencowe, J.	C. E. Pugh	,, M.	British India	,, ,, 30.8.31 to 27.10.31	24.11.31
077 †† *Edinburgh Castle* ...	Gilbert, E. F	L. H, Farrow	W.T.	Union Castle	Forms 911 & 138 30.10.31 to 19.12.31	30.12.31
107 *† *El Argentino*, M.V.	Ellis, F., D.S.C. ...	W. Findlay. J. Burch, C. G. Adlard.	No. M	Houlder	,, ,, 18.8.31 to 20.10.31	9.11.31
009 *† *Elmworth*, M.V. ...	Dick, J.	J. M. Whyte	,, M	R. S. Dalgleish ...	Form 911 3.9.31 to 23 9.31 ...	9.10.31
158 *† *Elpenor*	Wilson, R. J.	J. Macfarlane, F. Vose, F. Scott.	W.T.	A. Holt	Form 915 23.8.31 to 3.1.32 ...	11.1.32
108 *† *Elstree Grange* ...	Williams, W. E. ...	P. A. Hawkesworth, E. W. Ekins.	No. M.	Houlder	Forms 911 & 138 9.9.31 to 2.12.31	9.1.32
109 *† *El Paraguayo* ...	Owen, R.	G. Fletcher, F. J. G. Rice, R. L. Aldridge.	,, M.	,, ...	,, ,, 21.9.31 to 12.11.31	8.12.31
110 *† *El Uruguayo* ...	McNamara. T. ...	F. E. Hailstone	,, M.	,, ...	,, ,, 2.11.31 to 5.1.32	13.1.32
088 *† *Empire Star* ...	Owen, G., R.D., Lt.-Commr., R.N.R.	... ...	M.L.	Blue Star	... ...	...
006 †† *Empress of Australia*	Sibbons, H.	A. Tippett, A. H. Pigott, R. Newsom.	W T.	Canadian Pacific ...	Forms 911 & 138 23.11.31 to 20.12.31	9.1.32
034 †† *Empress of Britain*	Latta, R. G.	J. R. Bubb	,,	,, ,, ...	,, ,, 4.12.31 to 21.12.31	6.1.32
154 †† *Empress of Canada*	Hailey, A. J., Lt.-Commr., R.N.R.	G. O. Baugh, R. H. Foley, H. Kennedy.	M.L.	,, ,, ...	Form 915 28.3.31 to 8.7 31 ...	31.8.31
153 †† *Empress of Japan*	Robinson, S., C.B.E., R.N.R.	R. Goss, R. Wolfenden, A. Le Maistre.	,,	,, ,, ...	,, 7.8.30 to 13.1.31 ...	16.2.31

Name of Vessel.	Captain.	Observing Officers.	Meteorological Equipment.	Line.	Last Log, Register, or Record Contributed. Received up to 15.1.32.	Date Received.
011 †† *Euripides*	Vaughan, P. R., D.S.C., R.D., Commr. R.N.R.	R. H. Shaw	W.T.—M.	White Star	Forms 911 & 138 11.10.31 to 15.11.31	14.12.31
Explorer	Allan, J.	A. Stout	No. A.	Scottish Fishery Brd.	Form 911 2.11.31 to 24.11.31 ..	2.12.31
067 *† *Ferndale*	Beighton, J. N. ...	L. J. Hopkins, H. C. Howie, D. W. Campbell.	„ M.	Aberdeen Commonwealth.	Forms 911 & 138 3.9.31 to 8.10.31	26.11.31
074 *† *Fordsdale*	Avern, J., Commr. R.N.R	F. H. E. Vaughan	„ M.	Shaw, Savill and Albion.	„ „ 18.7.31 to 25.8.31	8.9.31
030 †† *Franconia*	Gibbons, G., R.D., Capt., R.N.R.	J. Ashcroft, C. Taylor, R. Pollitt.	W.T.	Cunard	Form 911 28.12.31 to 1.1.32 ...	15.1.32
159 *† *Fresno City* ...	Davies, D.	F. W. P. Davies	M.L.	Sir W. Reardon Smith and Sons Ltd.	... ...	...
Freya	Lamont, A.	W. Pirrie	No. A.	Scottish Fishery Brd.	Form 911 1.12.31 to 12.12.31 ...	18.12.31
125 *† *Glenamoy*, M.V. ...	Ings, W. J.	F. Laycock, L. Eccles, A. C. Radley.	W.T.	Glen Line	Form 915 22.6.31 to 27.10.31 ...	2.11.31
126 *† *Glengarry*, M.V. ...	Angier, J.	G. Morgan, I. G. Neill, S. W. Bell.	No. M.	„	Forms 911 & 138 19.6.31 to 4.10.31	9.10.31
085 *† *Governor*	Windsor, G. R. ...	A. Watson, J. Stanhope ...	„ M	Harrison	„ „ 25.6.31 to 23.8.31	27.8.31
111 *† *Hardwicke Grange*	Fowler, W. H. ...	W. L. Baker, A. W. Seybold, W. E. Ellis.	„ M.	Houlder	Forms 911 & 138 2.8.31 to 7.10.31	13.10.31
Harmonides ...	Elwell, F. R. ...	L. Pogson	„ A.	R. P. Houston ...	Form 911 24.11.31 to 24.12.31 ...	29.12.31
262 ** *Hauraki*, M.V.	Norton, A. T. ... ... Hender, W.	D. W. Blacklaws, D. McLeish, H. A. Brockett.	M.L.	Union S.S. Co., N.Z. ...	Form 915 8.12.30 to 16.7.31 ...	28.9.31
206 *† *Herminius*	Thurston, H. P. ...	F. W. Gilroy	„	Shaw, Savill & Albion	Form 911 9.7.31 to 1.11.31 ...	9.11.31
253 *† *Hertford*	Burton Davies, J. ...	P. Shakespeare, P. Block, P. M. Devitt.	„	Federal	Form 915 14.2.31 to 24.6.31 ...	6.7.31
Hiberna	Williams, E. R. ...	C. A. Marsh	C.C.	L.M. & S. Railway ...	Telegraphic Report 9.1.32	9.1.32
182 †† *Highland Brigade*	Lloyd, H.	W. Stephen, N. Hersee, C. Morgan.	No. M.	Nelson	Forms 911 & 138 9.8.31 to 27.9.31	7.10.31
116 †† *Highland Chieftain*, M.V.	Robinson, R. H. ...	W. J. Presland, J. H. Cables, L. Irving.	W.T.—M.	„	„ „ 20.9.31 to 8.10.31	16.11.31
099 †† *Highland Monarch*, M.V.	Ashby Graves, F. ...	R. Polden	No. M.	„	„ „ 16.11.31 to 4.1.32	11.1.32
250 †† *Highland Princess* M.V.	Collings, D.	C. Leech, J. Fitton, D. Seabrook.	„ M.	„	„ „ 8.10.31 to 22.11.31	26.11.31
Hilary	Jones, W. C. H., R.D., Commr., R.N.R.	... ...	M.L.	Booth	... ...	...
079 *† *Hildebrand* ...	Buck, R. H., R.D., Capt., R.N.R.	F. H. Good	W.T.	„	Forms 911 & 138 19.7.31 to 24.8.31	1.9.31
075 *† *Hobson's Bay* ...	Roberts, T. V., R.D., Lt.-Commr., R.N.R.	F. L. Gross, C. Smith, C. Carroll.	No. M.	Aberdeen Commonwealth.	Form 915 9.7.31 to 11.10.31 ...	19.10.31
Hubert	Briscoe, W.	R. Parry, G. G. Westhorp, L. A. Sterling.	M.L.	Booth	„ 17.5.31 to 25.7.31 ...	28.7.31
261 *† *Huntingdon* ...	Field, H. G. B. ...	P. S. Calcutt, H. F. Wilkinson, M. T. D. Walter.	W.T.	Federal	Forms 911 & 138 26.4.31 to 15.8.31	27.8.31
200 *† *Huntsman*	Russell, H.	J. Richardson, D. H. Goddard	No. M.	Harrison	Form 911 15.8.31 to 2.11.31 ...	13.11.31
289 *† *Inanda*	Gibbings, W. H. ...	D. C. Brown, R. L. Williams, T. W. Kent.	„ M.	Harrison	Forms 911 & 138 11.10.31 to 18.11.31	3.12.31
Ingoma	Richardson, R. ...	D. D. Kerr	„ M.	„	Form 911 8.11.31 to 18.12.31 ...	22.12.31
160 *† *Ixion*	Stewart, J. A. ...	C. S. Pope, G. Collier, F. G. Brown.	M.L.	A. Holt	Form 915 11.4.30 to 9.9.31 ...	16.11.31
Jamaica Merchant	Bach, L. G., R.D., Lt.-Commr., R.N.R.	C. P. Winard, B. W. Smith, A. E. Rich.	„	Jamaica Direct Fruit	Form 915 10.6.31 to 21.8.31 ...	3.9.31
072 ** *Jamaica Planter* ...	P. D. Allen	G. R. Wortley	W.T.	„ „	Forms 911 & 138 9.11.31 to 10.12.31	23.12.31
Javanese Prince, M.V	Smith, J.	C. E. Edney	No. A.	Prince	Form 911 24.10.31 to 7.11.31 ...	20.11.31
187 *† *Jeypore*	Harris, W. L.	A. G. Edwards	„ M.	P. & O.	Forms 911 & 138 17.10.31 to 14.11.31	26.11.31
188 †† *Kaisar-i-Hind* ...	Headlam, P. C., R.D., Commr. R.N.R.	T. T. Ferguson, H. Flint, L. Irons.	„ M.	P. & O.	Forms 911 & 138 26.10.31 to 16.12.31	2.1.32
041 *† *Karamea*, M.V. ...	Kenworthy, V. ...	N. S. Milne, C. Sendall, P. Campbell.	M.L.	Shaw, Savill & Albion	Form 915 17.7.31 to 1.11.31 ...	4.11.31
217 *† *Karapara*	White, R. W.	J. B. Walker, C. W. Furze ...	No. M.	British India	Forms 911 & 138 22.8.31 to 12.10.31	16.11.31
230 *† *Karmala*	McBryde, A.	A. Storr, L. Porter, F. W. J. Pearce.	„ M.	P. & O.	„ „ 28.6.31 to 2.10.31	8.10.31
191 *† *Kashmir*	Axford, R. G.	L. A. Hill, G. Randall, D. S. Charter.	„ M.	„	„ „ 22.8.31 to 28.11.31	3.12.31
114 †† *Kenya*	Miller, A. C.	R. Lord, H. Evans, G. Spedding.	„ M.	British India ...	„ „ 5.11.31 to 18.12.31	4.1.32
218 *† *Khandalla*	Eadie, J. D.	D. W. Dix, A. J. Woodcock	„ M.	„ „	„ „ 22.10.31 to 3.12.31	29.12.31
186 *† *Kidderpore* ...	Wright, C. S., R.D., Commr., R.N.R.	J. Collard, G. B. Roche ...	„ M.	P. & O.	„ „ 1.9.31 to 12.9.31	7.12.31
169 ** *Kwangchow* ...	Stringer, C. B. L. ...	B. C. Finch, F. H. Smith ...	M.L.	China Nav. Co. ...	Form 915 10.5.31 to 17.10.31 ...	13.1.32
147 †† *Laconia*	Hawkes, W. R. D., Capt. R.N.R.	J. D. Archer	W.T.	Cunard	Forms 911 & 138 30.11.31 to 19.12.31	29.12.31
Lagarto, M.V. ...	Kirkwood, J. H. ...	J. D. Richards	No. A.	Pacific S.N. Co. ...	Form 911 23.9.31 to 16.11.31 ...	7.12.31
Laguna, M.V. ...	Dunn, R.E., O.B.E. ...	W. Billington	„ A.	„ „	„ 16.5.31 to 2.6.31 ...	5.6.31
193 *† *Lahore*	Hollow, J. H.	J. G. K. Gregory, F. Hull, S. R. Eva.	„ M.	P. & O.	Forms 911 & 138 19.7.31 to 12.10.31	14.10.31
082 *† *La Paz*, M.V. ...	Morgan, D. R. ...	G. Pattison	„ M.	Pacific S.N. Co. ...	„ „ 2.7.31 to 13.10.31	2.11.31
134 †† *Lapland*	Harvey, H.	L. Williams, H. Patterson, R. M. Farmer.	W.T.	Red Star	„ „ 19.10.31 to 24.10.31	10.11.31

Name of Vessel.	Captain.	Observing Officers.	Meteorological Equipment.	Line.	Last Log. Register, or Record Contributed. Received up to 15.1.32.	Date Received.
076 *† *Largs Bay*	Jermyn, W. M. ...	F. B. Marsden, B. S. Mackenzie.	No. M.	Aberdeen Commonwealth.	Forms 911 & 138 17.5.31 to 28.6.31	28.9.31
112 *† *La Rosarina*	Webb, C.	W. S. Hamblin...	„ M.	Houlder	„ „ 4.10.31 to 10.12.31	17.12.31
Lassell	Lindsay, J. M. ...	... ...	„ A.	Lamport & Holt ...	Form 911 24.8.31 to 13.11.31 ...	16.12.31
064 †† *Laurentic*	Jackson, W. H. P. ...	F. M. Murphy, T. Holmes, A. Thompson.	W.T.	White Star	Forms 911 & 138 14.8.31 to 5.12.31	7.12.31
083 *† *Lautaro*, M.V. ...	Kite, E.	J. Lloyd Jones, J. Williams...	No. M.	Pacific S.N. Co. ...	„ „ 24.10.31 to 12.11.31	3.12.31
254 *† *Limerick*	Molyneux, P. L. ...	J. Trotter, N. A. Thomas ...	„ M.	Federal...	„ „ 1.9.31 to 15.10.31	21.10.31
093 *† *Llandaff Castle* ...	Le Brocq, C.	J. M. Goode	W.T.	Union Castle	„ „ 11.9.31 to 15.11.31	19.11.31
097 †† *Llangibby Castle*, M.V	Nicholl, D.	H. S. Warren	„	„ „	„ „ 10.10.31 to 13.12.31	18.12.31
094 *† *Llandovery Castle*	Morgan, A. O., R.D., Commr., R.N.R.	R. C. J. Hatt	„	„ „	Form 911 9.11.31 to 20.11.31 ...	7.12.31
216 *† *Llanstephan Castle*	Bickford, C. N. ...	J. B. Duncan, G. H. Pickering, S. Smith.	„	„ „	Forms 911 & 138 28.6.31 to 28.8.31	3.9.31
084 *† *Lobos*, M.V. ...	Good, W. T.	R. H. Sissons, J. Kerr, E. Potter.	No. M.	Pacific S.N. Co. ...	„ „ 3.10.31 to 4.1.32	9.1.32
137 *† *Logician*	Herschel, R. J. ...	T. Winstanley, E. L. Stockley	„ M.	Harrison	„ „ 22.6.31 to 13.10.31	23.10.31
008 *† *Losada*	Ridyard, A.	L. W. Hutchinson	„ M.	Pacific S.N. Co. ...	„ „ 12.11.31 to 24.11.31	17.12.31
013 *† *Macharda*	Hanna, R. G.	C. Lindsay Miller, C. Parry, G. A. Jackson.	No. M.	Brocklebank	Forms 911 & 138 10.11.31 to 7.12.31	4.1.32
232 *† *Madura*	Wright, J. A.	A. Usher, W. Bain, G. S. Haywood.	„ M.	British India... ...	„ „ 22.11.31 to 3.12.31	29.12.31
078 *† *Magician*	Bury, E. R.	W. E. Shotton, J. Johnson ...	„ M.	Harrison	„ „ 18.5.31 to 14.9.31	17.9.31
141 *† *Mahia*	Andrews, C. M. ...	G. Sangwin, M. P. Congdon, J. Jackson.	W.T.	Shaw, Savill & Albion	„ „ 22.7.31 to 19.11.31	23.11.31
140 *† *Mahratta*	Columbine, T. T. ..	T. C. Eddy, H. F. Scoins, J. Wilson.	No. M.	Brocklebank	„ „ 22.11.31 to 20.12.31	11.1.32
014 *† *Mahronda*	Sharpe, F. W. ...	W. Le Brocq, M. Melville, H. Wellington.	„ M.	„	„ „ 25.9.31 to 22.10.31	27.10.31
015 *† *Mahsud*	Kershaw, R. W. ...	S. Richardson, J. R. Paisley	„ M.	„	„ „ 20.5.31 to 6.8.31	14.9.31
016 *† *Maidan*	Ison, W. A	F. Moore, F. L. Attwood, L. E. Jeans.	„ M.	„	„ „ 26.2.31 to 8.5.31	12.5.31
042 *† *Maimoa*	Johnson, J. W ...	A. Winton. D. O. V. Pickersgill, W. A. Rogers.	M.L.	Shaw, Savill & Albion	Form 915 19.6.31 to 29.10.31 ...	3.11.31
054 †† *Majestic*	Trant. E. L., R.D., Commr., R.N.R.	H. N. Gill, R. Parry, L. Thompson.	W.T.	White Star	Form 911 & 138 24.12.31 to 10.1.32	12.1.32
018 *† *Makalla*	Maughan, J. W. ...	A. C. Hocking	No. M.	Brocklebank	Form 911 26.10.31 to 26.11.31 ...	21.12.31
225 ** *Makura*	MacDonald, D. ...	A. P. Cousin, S. H. Crawford, H. McRae.	M.L.	Canadian-Australasian	Form 915 16.4.31 to 1.8.31 ...	1.10.31
019 *† *Malakuta*	Adamson, F. L. ...	H. Simpson	No. M.	Brocklebank	Forms 911 & 138 26.11.30 to 4.3.31	1.4.31
020 *† *Malancha*	Cochran, G. N. ...	L. F. Dodson	„ M.	„ ...	„ „ 25.11.31 to 22.12.31	29.12.31
219 *† *Malda*	Denne, G. H. A. ...	D. Macfadyen, F. M. Bencastle K. K. Boyd.	„ M.	British India ...	„ „ 18.10.31 to 12.1.32	15.1.32
195 †† *Maloja*	Browning, J. B., R.D., Commr. R.N.R.	R. E. Baldwin - Wiseman, C. H. Hand. G. R. Peters.	„ M.	P. & O.	„ „ 28.6.31 to 30.9.31	6.10.31
196 †† *Malwa*	Britten, P. O.... ...	P. G. Lawrence...	„ M.	„	„ „ 1.11.31 to 20.11.31	2.1.32
053 *† *Manaar*	Thowless, E.	A. L. Harrop, J. Robinson, R. G. Widdon.	„ M	Brocklebank	„ „ 20.7.31 to 9.10.31	21.10.31
Manchester Brigade	Stott, C. H.	E. E. Bonnaud, J. Eccles, W. E. Hardman.	M.L.	Manchester Liners ...	Form 915 14.3.31 to 1.8.31 ...	10.8.31
Manchester Commerce.	Linton, P.	... ...	„	„ „ ...	... ...	...
Manchester Hero ...	Mitchell, G. M. ...	R. O. Jones, J. N. Emmitt, M. Barnes.	„	„ „ ...	Form 915 27.6.31 to 4.10.31 ...	21.10.31
028 †† *Mandala* ...	Kinnear, A. D. ...	W. E. F. Powell	No. M.	British India... ...	Forms 911 & 138 24.3.31 to 12.6.31	16.6.31
146 *† *Mandasor*	Longhurst, J. H. ... Richardson, T. ...	H. Fosbrooke, F. C. Madden, J. B Leigh.	„ M.	Brocklebank	„ „ 1.11.31 to 24.11.31	30.11.31
220 *† *Manela*	Maples, S. H. ...	W. F. Solly, T. M. Robertson, D. M. Gill.	„ M.	British India	„ „ 14.12.31 to 29.12.31	11.1.32
022 *† *Manipur*	Fuleber, H. D. ...	J. L. Rodger	„ M.	Brocklebank	„ „ 27.11.31 to 28.12.31	2.1.32
221 *† *Manora*	Hudson, H. T., R.D., Commr., R.N.R.	A. F. Baber. W. Brawn, J. W. Elcoat.	„ M.	British India... ...	„ „ 25.10.31 to 29.11.31	4.12.31
177 *† *Mantola*	James, D. F.	S. Henderson, G. B. Potts, H. I. Fisher.	„ M.	„ „	„ „ 23.11.31 to 16.12.31	22.12.31
197 †† *Mantua*	Hignett, R.D., Commr R.N.R.	J. D. Homidge, J. A. Wild, E. J. Sparling.	W.T.-M.	P. & O.	„ „ 22.8.31 to 9.11.31	2.12.31
299 ** *Marella*	Donaldson, A. ...	A. W. Blair. D. Pemberton, A. G. W. Thomas.	M.L.	Burns Philp	Form 915 3.6.31 to 23.10.31 ...	7.1.32
Marengo	Sibree, J. S.	F. Brown, C. Newton, J. E. Dobson.	„	Ellerman Wilson ...	„ 26.3.31 to 29.10.31 ...	6.11.31
222 †† *Margha*	Kitson, G. A.	P. Wright. J. S. Eason, H. Matthews.	W.T.	British India... ...	Forms 911 & 138 27.12.31 to 5.1.32	12.1.32
104 *† *Marquesa*	Smiles, R. S.	J. Wetherall	No. M.	Furness Houlder ...	„ „ 8.9.31 to 19.11.31	24.11.31
021 *† *Masula*	Fitt, W. H.	C. C. Taylor, J. L. Richardson, R. P. Evans.	„ M	British India	„ „ 9.11.31 to 1.12.31	4.1.32
251 *† *Matakana*	Gordon, H. R.... ...	H. Thompson	M.L.	Shaw, Savill & Albion	Form 911 20.6.31 to 29.9.31 ...	2.10.31
044 †† *Mataroa*	Gaskell, J. H., R.D., Lt.-Commr., R.N.R.	F. Eadon, F. C. Charnley, T. H. Davies.	„	„ „ „	Form 915 22.5.31 to 30.8.31 ...	1.10.31
023 *† *Matheran*	Mulcahy, J. J. ...	S. S. Slade, J. F. Butterworth. W. Cowrie.	No. M.	Brocklebank	Forms 911 & 138 14.11.31 to 29.11.31	21.12.31
223 *† *Matiana*	Green, F. V.	L. A. Bunn, P. M. Wilson, J. S. Thompson.	„ M.	British India... ...	„ „ 20.12.31 to 31.12.31	11.1.32
024 *† *Matra*	Cornish, N. P. ...	... ...	„ M.	Brocklebank	„ „ 18.8.31 to 3.12.31	9.12.31
032 †† *Mauretania*... ...	Peel, R. V., R.D., Capt., R.N.R	R. H. C. Crawford, H. V. Clarke. G. Duguid.	W.T.	Cunard	„ „ 13.9.31 to 28.9.31	30.9.31
101 †† *Melita*	... ...	... ...	„	Canadian Pacific ...	... ...	...
278 *† *Middlesex*	Almond, J. G. ...	J. R. Ricketts, E. G. Henry, L. G. Gould.	M.L.	Federal	Forms 911 & 138 16.10.31 to 31.12.31	7.1.32
270 *† *Minderoo*	Macphedran W. J. ...	A. J. Perry	No. M.	Western Australian S.N. Co.	Form 911 18.10.31 to 28.11.31 ...	4.1.32
Minna	Mackenzie. G. G. ...	A. M. Campbell	„ A.	Scottish Fishery Brd.	„ 2.12.31 to 20.12.31 ...	23.12.31
224 *† *Modasa*	Gilchrist, J. W ...	E. Hale, K. Kirkup, H. C. Pearson.	„ M.	British India	Forms 911 & 138 6.7.31 to 20.9.31...	24.9.31
194 †† *Moldavia*	Allin. C. H. C. ...	T. E. Heath	W.T.-M.	P. & O.	Form 911 25.11.31 to 10.12.31 ...	17.12.31
199 †† *Mongolia*	Rhodes, H. R. ...	H. Tee, H. C. Slinn, W. S. Joliffe.	No. M.	„ „	Forms 911 & 138 8.9.31 to 5.11.31	9.11.31
260 †† *Monowai*	Toten, A. T.	L. B. Elhert, T. W. Gibson, L. J Drew.	M.L.	Union S.S. of N.Z. ...	Form 915 22.1.31 to 9.5.31 ...	4.8.31

	Name of Vessel.	Captain.	Observing Officers.	Meteorological Equipment.	Line.	Last Log, Register, or Record Contributed Received up to 15.1.32.	Date Received.
148 ††	*Montcalm*	Rothwell, A.	W. P. Haines, T. L. Gillette, A Mackie.	W.T.-M.	Canadian Pacific ..	Forms 911 & 138 13.12.31 to 30.12.31	2.1.32
149 ††	*Montclare*	Carr-Jones, D. J. ...	J. Shearer, J. Sharples, J. Soames.	W.T.	„ „ ...	„ „ 22.11.31 to 12.12.31	18.12.31
150 ††	*Montrose*	Dott, J. F.	I. L. S. Baxendale, E. A. Shergold, L. L. Thornton.	„	„ „ ...	„ „ 29.11.31 to 19.12.31	22.12.31
164 ††	*Mooltan*	Morton, A. J.	R. M. Richardson, J. L. Dunkley, A. D. Dennis.	No. M.	P. & O.	„ „ 19.9.31 to 23.12.31	2.1.32
226 ††	*Mulbera*	Caffyn, F.	W. G. Donald	„ M.	British India	„ „ 20.11.31 to 22.12.31	29.12.31
290 *†	*Musician*	Bostock, O.	K. H. Davies, H. Philpott, S. H. Diamond.	„ M.	Harrison	„ „ 30.8.31 to 17.11.31	20.11.31
073 *†	*Nagara*	Womersley, H. ...	E. N. Giller, T. Fraser, G. Bonner.	„ M.	R.M.S.P. Co.	Forms 911 & 138 30.8.31 to 21.10.31	26.10.31
201 ††	*Naldera*	Harrison, R., D.S.O., R.D., Capt. R.N.R.	... ...	W.T.	P. & O.	Form 915 6.9.31 to 10.10.31 ...	12.12.31
121 *†	*Nankin*	Gordon, A. S.	... ...	M.L.	„ „	... ...	...
	Natia	Purvis, A.	F. Thacker	No. M.	R.M.S.P.	Form 911 10.10.31 to 4.12.31 ...	8.12.31
227 *†	*Nardana*	Reilly, J. V.	L. D. Macfadyen, H. Goater, H. Grace.	M.L.	British India	Form 915 25.4.31 to 21.8.31 ...	24.8.31
118 *‡	*Narenta*	Miles, F. R.	R. N. Fletcher, C. K. Brown, M. W. Weeks,	No. M.	R.M.S.P Co.	Forms 911 & 138 16.9.31 to 10.12.31	16.12.31
202 ††	*Narkunda*	Cadiz, F. G., D.S.C....	J. Travis	W.T.-M.	P. & O.	Form 911 11.12.31 to 22.12.31 ...	1.1.32
305 *†	*Nebraska*	Bridges, A. E. ...	H. Collinson, P. R. Cocks, R. S. Find.	No. M.	R.M.S P. Co.	Forms 911 & 138 2.10.31 to 24.12.31	1.1.32
203 ††	*Nellore*	Skinner, M.B. ...	J. F. M. Heddle, H. E. Nuzum, J. W. Kavanagh.	M.L.	E. & A. S.S. Co. ...	Form 915 2.8.31 to 28.10.31 ...	14.1.32
162 *†	*Nestor*	Adcock, F.	G. Edge, P. Elder, W. Pearse.	W.T.	A. Holt	„ 26.7.31 to 30.11.31 ...	10.12.31
210 *‡	*Niagara*	Hill, T. V.	G. H. Kime, D. A. Menlove L. P. Bourke.	M.L.	Canadian-Australasian	„ 1.5.31 to 14.8.31 ...	29.10.31
256 *†	*Norfolk*	Howell-Price, J., D.S.O., D.S.C.	G. C. Hocart, H. Cockerell, H. Dash.	„	Federal	„ 4.4.31 to 11.7.31 ...	21.7.31
	Norna	Angus, W.	T. R. Ness, ...	No. A.	Scottish Fishery Brd	Form 911 1.12.31 to 31.12.31 ...	6.1.32
297 *†	*Northumberland* ...	Upton, H. L., D.S.C., R.D., Commr., R.N.R	H. Rogers, G. B. Cathie, H. I. Phillips.	„ M.	Federal	Forms 911 & 138 24.4.31 to 9.8.31 ...	13.8.31
267 *†	*Novara*	Dene, R. C.	N. W. Leach	„ M.	P. & O.	„ „ 31.10.31 to 30.11.31 ...	7.12.31
	Nova Scotia ...	Furneaux, S. J. ...	J. E. Wilson, A. Hender, N. Forsythe.	M.L.	Furness Withy ...	Form 915 17.4.31 to 28.9.31 ...	2.10.31
231 *†	*Nuddea*	Beeching, P. H. ...	D. A. Jones, W. Monk, T. Hodgkinson.	No. M.	British India	Forms 911 & 138 30.10.31 to 12.12.31	4.1.32
294 ††	*Olympic*	Binks, J. W., R.D., Lt.-Commr., R.N.R.	D. W. Alexander, O. N. Tugwell, G. Brooks.	W T.	White Star	Forms 911 & 138 9.12.31 to 21.12.31	23.12.31
243 *†	*Opawa*, M.V. ...	Robinson, F. W. ...	J. W. Pring, H. P. Williamson, R. H. Chapman.	M.L.	New Zealand S.S. Co.	„ „ 24.5.31 to 21.9.31	25.9.31
170 ††	*Orama*	Matheson, C. G., D.S.O., R.D., Capt. R.N.R.	E. V. Bilger, W. Eliot, R. W. Roberts.	W.T.	Orient	„ „ 25.5.31 to 25.8.31	3.9.31
086 ††	*Orcoma*	Benson, E. W. ...	T. R. Scott, H. J. Jones, H. D. Dillon.	W.T.-M.	Pacific S.N. Co. ...	„ „ 2.8.31 to 30.9.31	7.10.31
087 ††	*Orduna*	Galloway, M.	P. L. Hockey	„	„ „ ...	„ „ 22.11.31 to 4.12.31	15.12.31
258 *†	*Oregon Star* ...	Lewis, G.	E. T. Blaxland	No. M.	Blue Star	... ...	...
171 ††	*Orford*	Owens, A. L., Commr. R.D., R.N.R.	C. B. Hubert, G. B. H. Jones, C. H. Denton	„ M.	Orient	Form 911 19.10.30 to 12.1.31 ...	15.1.32
174 ††	*Ormonde*	James, L. V., D.S.C.	T. L. Shurrock, N. Smith, C. Blake.	W.T.	„	Forms 911 & 138 19.7.31 to 20.10.31	30.10.31
172 ††	*Oronsay*	Cameron, E. P., R.D., Commr., R.N.R.	E. M. Mackay, D. Madeley	„	„	„ „ 21.6.31 to 22.9.31	5.10.31
173 ††	*Orontes*	O'Sullevan, F. R. ...	J. M. Swanson	No. M.	„	„ „ 13.9.31 to 15.12.31	19.12.31
105 ††	*Orsova*	Thorne, G. G., R.D. Commr., R.N.R.	R. B. Stannard	W.T.	„	„ „ 16.8.31 to 17.11.31	26.11.31
156 ††	*Otranto*	Staunton, H. G., C.B.E. R. D. Commr., R.N.R.	A. E. Coles, A. Addison, E. V. Bilger.	W.T.-M.	Orient	„ „ 27.9.31 to 19.12.31	29.12.31
287 *†	*Pacific Enterprise*, M.V.	Newman, G. W. A. ...	C. G. White, A. C. Bailey, R. B. Garner.	M.L.	Furness Withy ...	Form 911 9.9.31 to 3.12.31 ...	28.12.31
279 *†	*Pacific Exporter* ...	Holland, C. E., R.D., Commr., R.N.R.	W. Edmonds	W.T.	„ „ ...	Forms 911 & 138 2.7.31 to 23.9.31	5.10.31
	Pacific Shipper, M.V	Nuttall, E. L.	S. Porter	No. A.	„ „	Form 911 16.6.31 to 16.9.31 ...	21.9.31
	Pancras ... {	Barlow, F. P. ...	L. A. Sayers, S. Adams ...	M.L.	Booth	Form 915 9.2.31 to 16.7.31 ...	29.7.31
	{	Reynolds, W.					
	Paris	Hill, A.	T. Mahoney	C.C.	Southern Rly. ...	Telegraphic Report. 3.12.31 ...	3.12.31
	Patia	Sapsworth, S. A. ...	R. O. Laycock, R. S. Howlett.	No. A.	Elders & Fyffes ...	Form 911 6.10.31 to 7.11.31 ...	14.11.31
	Patrician	Low, J.	W. E. Williams, E. Bennett, A. E. Jackson.	„ M.	Harrison	... ...	...
	Peisander	Findlay, J.	C. T. Morgan	„ A.	A. Holt	Form 911 3.2.31 to 23.4.31 ...	12.5.31
058 ††	*Pennland*	Making, V. L. ...	C. H. Otterson, G. T. Boyle, J. Cross.	W.T.	Red Star	Forms 911 & 138 23.11.31 to 13.12.31	14.12.31
204 *†	*Peshawur*	Roche, C. B.	P. Haworth, J. A. Hunter, A. Nicklen.	No. M.	P. & O.	Form 915 2.8.31 to 2.12.31 ...	7.12.31
238 *†	*Piako*	Aslin, E. P. C. ...	A. D. Wilson, A. W. Marshall, R. H. Carter.	„	New Zealand S.S. Co.	Forms 911 & 138 11.6.31 to 30.7.31	13.8.31
039 *†	*Planter*	Ling, J. T.	W. S. Eustance, J. J. Devereux, W. H. Slaughter.	„	Harrison	„ „ 30.8.31 to 4.12.31	7.12.31
040 *†	*Port Adelaide* ...	Williams, R.	F. W. Elger	W.T.	Commonwealth & Dominion.	... ...	...
255 *†	*Port Alma*	Hayter, S. W.	G. Dean, E. Wheeler, J. Moate.	M.L.	„ „ „	Form 915 11.7.31 to 4.12.31 ...	9.12.31
128 *†	*Port Auckland* ...	Robinson, C. A. ...	A. Brown	„	„ „ „	„ 15.7.31 to 29.10.31 ...	11.11.31
268 *†	*Port Bowen* ...	Brown, A. H.	F. R. Gorman, T. L. Kidwell, T. Soans.	W.T.	„ „ „	„ 1.7.31 to 13.10.31	28.10.31
129 *†	*Port Campbell* ...	Gregory, S. E. A. ...	J. C. Goddard, N. M. Muzzell, C. Midwinter.	„	„ „ „	„ 1.8.31 to 29.11.31 ...	14.12.31

Name of Vessel.	Captain.	Observing Officers.	Meteoro-logical Equipment.	Line.	Last Log, Register, or Record Contributed. Received up to 15.1.32.	Date Received.
130 *† *Port Caroline* ...	Hearn, G. W.... ...	V. G. Battle, E. W. R. Young, R. E. Garner.	M.L.	Commonwealth and Dominion.	Form 915 17.6.31 to 8.10.31 ...	19.10.31
131 *† *Port Darwin* ...	Hudson, J. J.... ...	K. D. Morgan, W. R. Johnson, L. C. Asser.	,,	,, ,, ,,	,, 5.5.31 to 27.8.31 ...	11.9.31
132 ** *Port Denison* ...	Hall, G. S.	A. G. Newbury, R. A. Hollo-way, H. Duckling.	,,	,, ,, ,,	,, 23.4.31 to 26.8.31 ...	3.9.31
133 *† *Port Dunedin*, M.V.	Mason, W. S., D.S.C.	H. M. Post. C. A. Hodson, R. W. Chamberlain.	,,	,, ,, ,,	,, 15.5.31 to 1.9.31 ... Form 911 12.8.31 to 17.9.31 ...	7.9.31
010 *† *Port Fremantle*, M.V.	Gilling, W.	A. Naismith	,,	,, ,, ,,		21.9.31
176 *† *Port Gisborne*, M.V.	Higgs, W. G.	R. B. Linklater, L. J. Skailes, L. E. Ring.	,,	,, ,, ,,	Form 915 19.7.31 to 24.10.31 ...	30.10.31
135 *† *Port Hunter* ...	Durham, R. S., D.S.C.	G. T. C. Harris, C. R. Town-shend, P. M. McClounan.	,,	,, ,, ,,	,, 6.9.31 to 27.12.31 ...	31.12.31
Port Wellington ...	Jones, C. N.	W. B. Hopkins	No. A.	,, ,, ,,	Form 911 26.8.31 to 4.1.32 ...	11.1.32
106 *† *Princesa*	Friend, A. B.	F. Poulson, E. Lougheed, O. Sheard.	,, M.	Houlder	Forms 911 & 138 14.12.31 to 30.12.31	2.1.32
163 *† *Protesilaus*	Rundle, G. G.... ...	W. C. McGuigan	M.L	A. Holt	Form 915 28.5.31 to 14.9.31 ...	23.10.31
205 †† *Rajputana*	Holland, R.	G. Aspinall, H. M. Askin, C. F. Wright.	,, M.	P. & O.	Forms 911 & 138 11.10.31 to 6.1.32	15.1.32
063 *† *Rancher*	Mc.Cullum, J.... ...	G. Harvey, C. F. Minshull, A. L. Lewis,	,, M.	Harrison	,, ,, 12.7.31 to 29.9.31	2.10.31
228 †† *Ranchi*	Brooks, C.	T. A. Sergeant, H. E. Holt ...	,, M.	P. & O	,, ,, 20.9.31 to 11.11.31	17.11.31
236 †† *Rangitane* M.V. ...	McKellar, A. W. ...	A. Brown, R. C. Aldridge, C. J. P. Guille.	W.T.-M.	New Zealand S.S. Co.	Form 915 3.7.31 to 15.10.31 ...	22.10.31
257 †† *Rangitata* M.V. ...	Hunter, J. L. B. ...	J. Oxnard, D. Chadwick, S. Leggett.	,,	,, ,, ,,	Forms 911 & 138 6.6.31 to 16.9.31	28.9.31
240 †† *Rangitiki* M.V. ...	Barnett, H.	H. Hill, L. F Malcouronne, J. V. Halliday.	,,	,, ,, ,,	,, ,, 30.8.31 to 9.12.31	14.12.31
207 †† *Ranpura*	Furlong, G. H. S., R.D., Capt. R.N.R.	F. Ferguson, R. A. Perry, H. Toon.	No. M.	P. & O.	,, ,, 10.10.31 to 1.12.31	9.12.31
071 †† *Rawalpindi* ...	Stringer, O.B.E., R.D., Commr., R.N.R.	G. W. du Fosse, E. Cowen ...	W.T.-M.	,, ...	,, ,, 29.8.31 to 22.10.31	26.10.31
247 *† *Recorder*	Egerton, J. J. ...	A. S. Milne, H. C. Blyth, W. Weatherall.	No. M.	Harrison	,, ,, 20.10.31 to 8.12.31	11.12.31
306 *† *Reina del Pacifico*, M.V.	Roberts, E.	W. A. Hearle, R. Bridson, J. K. Campbell.	,, M.	Pacific S.N. Co. ...	,, ,, 15.11.31 to 4.1.32	11.1.32
239 *† *Remuera*	Wilde, H. J.	A. J. Angell, J. R. Vincent, H. Vernon.	M.L.	New Zealand S.S. Co.	Form 915 31.7.31 to 5.11.31 ...	11.11.31
Rhexenor	Stout, G. L.	J. S. Parry	No. A.	A. Holt...	Form 911 1.6.31 to 26.6.31... ...	11.8.31
Rhodesian Trans-port.	Bowen, A. C.	H. S. Butler	,, A.	Houlder Bros. ...	,, 5.4.31 to 5.7.31 ...	20.7.31
Ross, S.T.	Johnson, H.	... ...	,, A.	W. Grant & Sons ...	... ...	...
189 *† *Rother*	Woodhead, T. H. ...	H. Robinson, H. L. Marshall	W.T.	Goole Steam Shipping	Form 911 28.11.31 to 19.12.31 ...	22.12.31
241 *† *Rotorua*	Lamb, C. B.	L. W. Fulcher, K. L. Jones. J. G. Gould.	M.L.	New Zealand S.S. Co.	Form 915 3.4.31 to 22.7.31 ...	29.7.31
062 *† *Royal Star*... ...	Walsh, W	A. F. Day, J. Higgin, J. W. McHugh.	,,	Blue Star	,, 6.9.31 to 30.11.31 ...	7.12.31
246 *† *Ruahine*	Kinnell, G.	A. Hocken, R. Warren, L. Mercer.	W.T.	New Zealand S.S. Co.	Forms 911 & 138 26.9.31 to 31.12.31	11.1.32
St. Helier	Pitman, R.	A. C. Ricketts	C.C.	G.W. Railway ...	Telegraphic Report 5.12.31 ...	5.12.31
St. Julien	Richardson, L. ...	A. E. Ricketts, H. D. Free-man.	,,	,, ,, ...	,, ,, 14.1.32 ...	14.1.32
St. Minver, S.T. ...	Hatton, A.	C. Shaw, W. Robertson, G. Henshaw.	No. A.	Bunch Steam Fish-ing Co.	Form 911 6.11.31 to 5.12.31 ...	9.12.31
St. Patrick	... ...	F. E. Martin	C.C.	G. W. Railway ...	Telegraphic Report 15.9.31 ...	15.9.31
038 †† *Samaria*	Malin, R. G., Lt.-Commr., R.N.R.	A. MacKellar, F. G. Watts, J. A. Myles.	W.T.	Cunard	Forms 911 & 138 26.10.31 to 14.11.31	17.11.31
291 *† *Scholar*	Peterkin, A. G. ...	A. Robertson, R. J. Mackinnon	No. M.	Harrison	,, ,, 15.10.31 to 22.12.31	29.12.31
Scotia	O'Neill, J.	W. H. Hughes	C.C.	L.M. & S. Railway ...	Telegraphic Report 15.1.32 ...	15.1.32
033 †† *Scythia*	Oram. B. B., R.D., Commr., R.N.R.	F. P. Collins. A. Bridgewater, H. L. Pryse.	W.T.	Cunard	Forms 911 & 138 21.9.31 to 1.11.31	3.11.31
211 *† *Shropshire*, M.V. ...	English, G. L. ...	A. D. Quayle, R. Cumming, D. Hetherington	,,	Bibby	,, ,, 1.11.31 to 7.1.32	14.1.32
Silksworth ...	Blacklock, G.... ...	W. S. Allen	No. A.	R. S. Dalgleish ...	Form 911 1.11.31 to 24.11.31 ...	1.1.32
230 *† *Somerset*	Pilcher, C. R.... ...	C. Edgecombe, H. M. Knight, H. V. G. Hastings.	M.L.	Federal	,, 16.8.31 to 14.11.31 ...	19.11.31
277 *† *Spero*	Montgomery, H. ...	H. W. Vickers, A. Kirk ...	,,	Ellerman Wilson ...	Form 915 28.3.31 to 3.10.31 ...	7.10.31
Stephen	Barlow, E. P. ...	C. G. Powell, G. H. Daniels	,,	Booth	,, 26.6.31 to 30.10.31 ...	27.11.31
259 *† *Surrey*	Lettington, A. E. ...	R. Rees, D. J. Murray, H. H. Mackillican.	,,	Federal...	,, 17.5.31 to 16.9.31 ...	26.9.31
Sylvafield, M.V.	MacDonald, W. ...	J. Johnson	No. A.	Hunting & Son ...	Form 911 17.11.31 to 29.12.31 ...	6.1.32
Tacoma City ...	Paul, H.	H. Small	,, A.	Reardon Smith ...	Form 911 7.8.31 to 25.11.31 ...	1.12.31
229 *† *Tactician*	Trinick, F., O.B.E. ...	E. P. Simmons	,, M.	Harrison	,, 19.7.31 to 7.10.31 ...	10.10.31
045 †† *Tainui*	McIntosh, A. ...	G. A. Harvey, A. G. Collins. J. Worrall.	M.L.	Shaw, Savill & Albion	Form 915 27.6.31 to 9.10.31 ...	11.11.31
081 *† *Tairoa*	Christie, D.	G. L. Almond, C. A. Meyer, L. B. Miller.	,,	,, ,, ,,	,, 27.5.31 to 1.10.31 ...	5.10.31
234 *† *Talma*	Harley, G. J.	M. H. Vincent, R. Potter, R. H. Weatherseed.	W.T.-M.	British India	Forms 911 & 138 17.5.31 to 21.9.31	12.10.31
046 †† *Tamaroa*	Hartman, W. H. ...	L. R. Bull, R. R. Roseman, F. Lutyen,	,,	Shaw, Savill & Albion	,, ,, 11.9.31 to 17.12.31	24.12.31
264 ** *Tanda*	Pilcher, E. T., Lt.-Commr., R.N.R	R. Lloyd, G. C. Smith, B. M. Dun.	M.L.	E. & A. S.S. Co. ...	Form 915 30.5.31 to 30.8.31 ...	2.11.31
165 *† *Tantalus*, M.V. ...	Melling, C. F.... ...	A. C. H. Jones, J. J. Daniell, W. C. Angus.	W.T.	A. Holt	,, 1.7.31 to 25.10.31 ...	29.10.31
047 *† *Taranaki*, M.V ...	Wood, C., D.S.C. ...	R. Bitmead, S. P. Wallis, A. M. Whiteford.	M.L.	Shaw, Savill & Albion	Form 915 29.8.31 to 15.12.31 ...	28.12.31
Tarantia	Caithness, J. B. ...	J. M. Cherry	No. A.	Anchor	Form 911 10.10.31 to 29.10.31 ...	26.11.31
069 *† *Tekoa*	McNish, R. H. L., D.S.O., Lt.-Commr., R.N.R.	J. J. Youngs. W. Rodwood, C. W. Roberts.	,, M.	New Zealand S.S. Co.	,, 28.10.31 to 7.11.31 ...	7.12.31
Tetela	Brice, E. H.	J. D. Paterson	,, A.	Elders & Fyffes ...	,, 7.9.31 to 9.10.31 ...	15.10.31
Teucer	Davies, J.	C. C. L'Estrange	,, A.	A. Holt...	,, 26.4.31 to 15.8.31 ...	24.8.31
048 †† *Themistocles* ...	Young, A. D.... ...	... ...	W.T.-M.	Aberdeen Common-wealth.	... ...	...
007 *† *Thistleglen*	Whitfield, G.A., O.B.E.	S. B. Davis, H. B. Meek, G. L. Hetherington.	No. M.	Allan Black & Co. ...	Form 915 12.2.31 to 14.5.31 ...	18.5.31

Name of Vessel.	Captain.	Observing Officers.	Meteorological Equipment.	Line.	Last Log, Register, or Record Contributed. Received up to 15.1.32.	Date Received
235 *† *Tilawa*	Coleborn, E.	E. Cullerne, A. Bain, F. Haigh	No. M.	British India... ...	Form 911 3.10.31 to 28.10.31 ...	23.11.31
168 *† *Tinhow*	Scobie, A.	G. W. Seth, P. Aydon, C. H. Smith.	„	A. Weir & Co. ...	Forms 911 & 138 21.7.31 to 12.10.31	23.11.31
161 *† *Titan*	Elford, W. J.	F. B. Smith. A. K. Sanderson, W. H. Deans.	W.T.	A. Holt	Form 915 23.5.31 to 29.9.31 ...	7.10 31
244 *† *Tongariro*	Hamilton, F. S. ...	E. A. Quick, D. Baldwin, H. Dawson.	M.L.	New Zealand S.S. Co.	„ 27.7.31 to 1.12.31	7.12.31
025 †† *Transylvania* ...	Gemmell, W.	A. Middleton, J. O. Dunn, J. A. Lefevre.	W.T.	Anchor	Forms 911 & 138 25.10.31 to 14.11.31	17.11.31
288 *† *Traveller*	Barrow, W. T. C. ...	R. Ledger	No. M.	Harrison	„ „ 4.6.30 to 14.8.31	24.8.31
Trecarrell	Old, E. G.	W. E. McEwan, G. A. Solly	„ A.	Hain S.S. Co.	Form 911 26.3.31 to 29.4.31 ...	19.5.31
242 *† *Trematon*	Cundy, F.	J. Jenkyn, C. M. Quick, T. M. Meakin.	M.L.	„ „	... ...	...
119 *† *Trojan Star* ...	Griffin, G. A.	A. Emerson. L. S. Hassell ...	No. M.	Blue Star	Forms 911 & 138 14.6.31 to 30.8.31	4.9.31
245 *† *Turakina*	Laird J.	A. Weatherall. E. G. Williams. J. Reeve.	„ M.	New Zealand S.S. Co.	„ „ 4.3.31 to 12.6.31	17.6.31
276 †† *Tuscania*	Rome. W. B.	G. Noble	W.T.	Anchor...	„ „ 29.11.31 to 21.12.31	24.12.31
167 *† *Tyndareus*...	McClure, W. ... ... Ireland, T. R.... ...	C. Houghton, E. B. Sandon, F. Wilkes.	M.L.	A. Holt	Form 915 16.6.31 to 9.11.31... ...	5.1.32
Uffington Court ...	Clarke, E. J	T. Glover	No. A.	Haldin & Co.... ...	Form 911 25.3.31 to 8.6.31 ...	23.6.31
113 *† *Upwey Grange*, M.V.	Goodrick, H. P. ...	A. Bradbury, G. T. Hurst, P. J. Walker.	„ M.	Houlder	Forms 911 & 138 14.9.31 to 30.11.31	8.12.31
292 †† *Viceroy of India* ...	Thornton, E. J., R.D., Capt., R.N.R.	W. R. B. Noall, F. Shute, J. S. Smith.	„ M.	P. & O.	Forms 911 & 138 9.11.31 to 31.12.31	2.1.32
Vigilant	Simpson, E. S. S. ...	J. Wilson	„ A.	Scottish Fishery Brd.	Form 911 2.12.31 to 27.12.31 ...	4.1.32
263 ** *Wairuna*	Stewart. A. R. ...	S. E. Gaskin, D. Williams, H. M. Hughes.	M.L.	Union S.S. Co. of N.Z.	Form 915 8.7.31 to 9.10.31 ...	28.12.31
005 †† *Warwick Castle* ...	Owens, G.	P. Clissold	W.T.	Union Castle ...	Form 911 10 10.31 to 29.11.31 ...	1.12.31
060 †† *Westernland* ...	Trant, A. W. V. ...	J. L. McLaren, J. R. Loe, J. H. A. Mackie.	„	Red Star	Forms 911 & 138 20.12.31 to 8.1.32	11.1.32
William Scoresby, R.R.S.	Joliffe, T. A., Commr., R.N.	W. A. Ellison. F. E. C. Davies	M.L.	Falkland Islands Government.	Form 915 1.4.31 to 30.7.31... ...	5.10.31
208 †† *Winchester Castle* M.V.	Gardner, G. F., O.B.E., Lt.-Commr. R.N.R.	G. F. Moon, A. G. Parey ...	W.T.	Union Castle	Forms 911 & 138 7.11.31 to 27.12.31	29.12.31
096 †† *Windsor Castle* ...	Kerbey, J. H.... ...	F. Hunter, E. H. Dixey, J. Trayner	„	„ „	Form 915 28.3.31 to 20.9.31 ...	23.9.31
Worthing	Marmery, S.	C. Munton, E. Balcombe ...	C.C.	Southern Railway ...	Telegraphic Report 15.1.32 ...	15.1.32
043 ** *Zealandic*, M.V. ...	Elford, H. C.	P. Horwood, J. Thompson, B. Morris.	W.T.	Shaw, Savill & Albion	Forms 911 & 138 3.11.31 to 8.12.31	11.12.31
Zent	Bower, H, C.... ...	W. Pearce	No. A.	Elders & Fyffes ...	Form 911 26.11.31 to 26.12.31 ...	31.12.31
Conway, H.M.S. ...	Richardson, F. A., D.S.C., Commr., R.N.	The Senior Cadets	Cadets' M.L.	... ...	Cadets' Met. Log. 20.9.31 to 9.12.31	12.12.31
Pangbourne Nautical College	Tracy, A. F. G., Commr., R.N.	„ „	„	... ...	Cadets' Met. Log. 27.9.31 to 13.12.31	18.12.31
Worcester, H.M.S.	Steele, G. C., V.C., Commr., R.N.	„ „	„	... ...	Cadets' Met. Log. 25.9.31 to 16.12.31	20.12.31
Abaco	... ...	The Keepers	Lighthouse Register.	... ...	Lighthouse Register 1.7.30 to 31.12.30	22.5.31
Coy Lobos	... ...	„	„	... ...	Lighthouse Register 1.1.31 to 30.6.31	10.8.31
Double Headed Shot	... ...	„	„	... ...	Lighthouse Register 1.1.31 to 30.6.31	10.8.31
Inagua	... ...	„	„	... ...	Lighthouse Register 26.2.31 to 5.9.31	5.10.31
Sombrero	... ...	„	„	... ...	Lighthouse Register 1.1.31 to 30.6.31	4.8.31
Watling Island ...	... ...	„	„	... ...	Lighthouse Register 1.1.31 to 30.6.31	10.8.31
Cape Pembroke ... (Falkland Is.)	... ...	„	„	... ...	Lighthouse Register 1.1.31 to 30.6.31	13.8.31

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Name of Vessel.	Captain.	Observing Officer.	Line.	Last Case of Water Samples, Reports, etc., received up to 31.12.31.	Date Received.
Dakarian	Brown, W.	A. A. Johnson	Leyland	Water Samples	29.12.31
Darian	Hannaford, W.	W. R. Vaughan	„	„ „	18 9 31
Darro	Green, J.	A. J. G. Barff	R.M.S.P. Co.	„ „	19.12.31
Davisian	Thomas, R.	F. Steventon	Leyland	„ „	5.11.31
Dorelian	Hughan, C.	F. C. Sheerbart	„	„ „	14.10.31
Hildebrand...	Buck. R. H., R.D., Capt. R.N.R.	F. H. Good	Booth	„ „	3.9.31

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MARINE METEOROLOGY, ATLASES, BOOKS AND MEMOIRS.

CHARTS:—

ATLANTIC (NORTH AND SOUTH):—

Monthly Current Charts for the Atlantic Ocean, from information collated and prepared in the Meteorological Office. (No. 132, 1897) (22½ × 18 in.) (Published by the Admiralty.)

Charts of Meteorological Data for the Nine 10° Squares of the Atlantic which lie between 20° N. and 10° S., and extend from 10° to 40° W., with accompanying Remarks, ending with the Best Routes across the Equator. (No. 27, 1876) 24*s.* (17 × 20 in.)

ATLANTIC (NORTH):—

Atlas of Currents on the Main Trade Routes of the North Atlantic. (No. 323, 1930. 6*s.* 6*d.*) (29¼ × 19½ in.)

Meteorological Charts of the North Atlantic for each month of the year, giving normals of Pressure, Air and Sea Surface Temperature and Ocean Currents, with Frequencies of Winds, also Ice Limits. (No. 149A, 1923.) 1*s.* each (35 × 22½ in.). Sold by J. D. Potter, 145, Minories, E.1.

Synchronous Weather Charts of the North Atlantic and the adjacent Continents, 1st August, 1882, to 3rd September, 1883. Parts I to IV (33 sheets each). (No. 71, 1886) 17*s.* each Part. (26 × 22 in.)

Charts of Meteorological Data for Square 3, Lat. 0°-10° N., Long. 20°-30° W. (20 × 13½ in.) and Remarks to accompany the Monthly Charts, which show the Best Routes across the Equator for each Month, &c. (17 × 16½ in.) (No. 20, 1874). 20*s.*

Discussion of the Meteorology of that Part of the Atlantic lying North of 30° N., for the eleven days ending 8th February, 1870. With Charts (No. 13, 1872). 5*s.* (4to.)

ATLANTIC (SOUTH):—

Wind Charts for the Coastal Regions of South America, from information collated and prepared in the Meteorological Office. (No. 159, 1902.) (27 × 20½ in.) (Published by the Admiralty.)

The relation between Pressure, Temperature, and Air Circulation over the South Atlantic Ocean. By M. W. Campbell Hepworth, C.B., R.D., Captain R.N.R., Marine Superintendent. (No. 177, Second Edition, 1917.) 1*s.* (8vo.)

BAFFIN BAY AND DAVIS STRAIT:—

Monthly Meteorological Charts of Baffin Bay and Davis Strait. (No. 221, 1917.) 8*s.* (30 × 25½ in.)

CHARTS:—*continued*

INDIAN OCEAN:—

Meteorological Charts of the East Indian Seas for each month of the year, giving Normals of Pressure, Air and Sea Temperatures and Ocean Currents, with Frequencies of Winds. (No. 181A, 1923.) 1*s.* each. (35 × 22½ in.) Sold by J. D. Potter, 145, Minories, E.1.

Monthly Current Charts for the Indian Ocean, from information collated and prepared in the Meteorological Office. (No. 124, 1896.) (20 × 24½ in.) (Published by the Admiralty.)

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Quarterly Current Charts for the Pacific Ocean, from information collated and prepared in the Meteorological Office. (No. 134, 1897.) (26½ × 28½ in.) (Published by the Admiralty.)

Wind Charts for the Coastal Regions of South America, from information collated and prepared in the Meteorological Office. (No. 159, 1902.) (27 × 20½ in.) Published by the Admiralty.)

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Meteorological Charts of the Red Sea. (No. 106, 1895.) 21*s.* (22 × 13½ in.)

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PAMPHLET:—

Decode for use with the International Code for Wireless Weather Messages from Ships. Second Edition. (No. 329, 1931.) 3*d.* (8vo.)

GEOPHYSICAL MEMOIRS (4TO.):—

19. Hurricanes and Tropical Revolving Storms. By Mrs. E. V. Newnham, M.Sc. With an Introduction on "The Birth and Death of Cyclones," by Sir Napier Shaw, F.R.S. (No. 220i, 1922.) 12*s.* 6*d.*

28. The Doldrums of the Atlantic. By C. S. Durst, B.A. (No. 254h, 1926.) 1*s.* 6*d.*

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[*To face page* viii.